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# THE MEDICAL JOURNAL OF AUSTRALIA

VOL. I.—10TH YEAR.

SYDNEY: SATURDAY, JANUARY 6, 1923.

No. 1.

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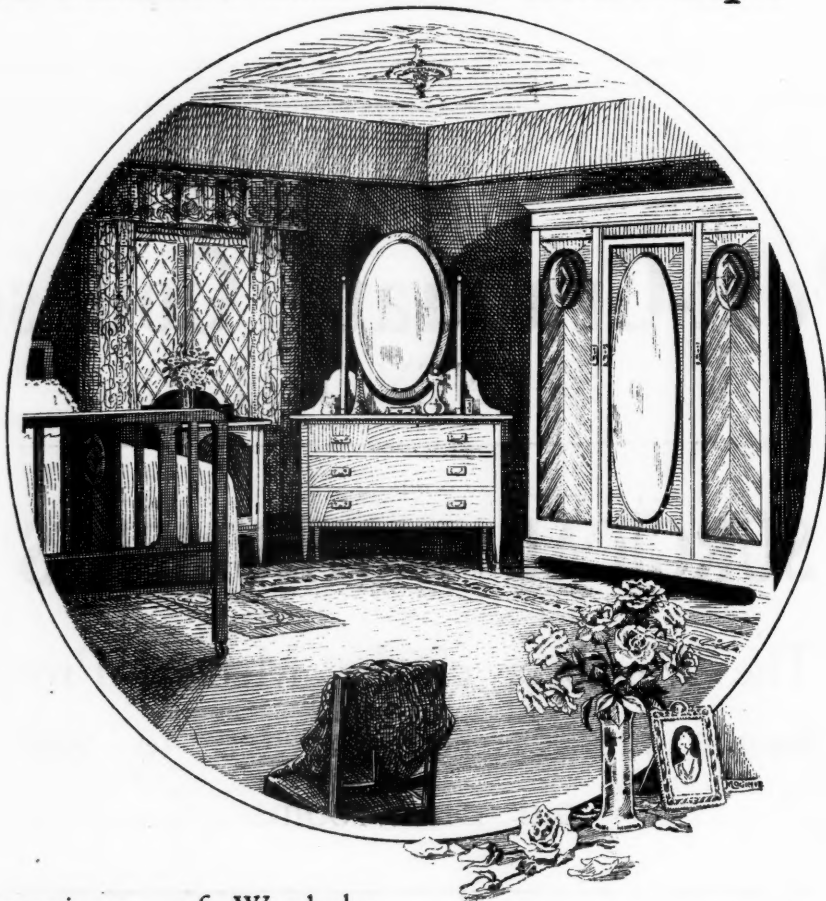
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### DYSENTERY: BACILLARY AND AMŒBIC.<sup>1</sup>

BY E. MARJORY LITTLE, B.Sc., M.B. (SYDNEY),  
Bacteriologist, Royal Prince Alfred Hospital, Sydney;  
Demonstrator in Pathology, University of Sydney.

I PROPOSE this evening to deal very briefly with the subject of dysentery under the following headings:

- (1) The locality and type of lesion in amœbic and bacillary dysentery.
- (2) Methods of collection and examination of material with a view to the laboratory diagnosis of these conditions.
- (3) Occurrence of dysenteric infections in the civilian population.

#### Locality and Type of Lesion in Amœbic Dysentery.

The *Entamoeba histolytica* is ingested in the encysted state and during its passage through the small bowel is acted upon by the digestive juices, finally arriving in the large bowel in the active amœboid state. Here it penetrates the mucosa and, reaching the sub-mucosa, settles down to multiply and to elaborate what Fairley and Dew<sup>(1)</sup> describe as toxic substances, Shearman and Willmore<sup>(2)</sup> as proteolytic ferments. Whatever the nature of the

substance produced, the destruction of the surrounding tissue is intense. Thrombosis of the neighbouring vessels occurs, leading to local gangrene and even to death of large areas of bowel. The bowel lesions are to be found in the colon, particularly the ascending portion, and in the caecum, sometimes extending to the descending colon. A characteristic feature is the patchy distribution of the lesions, greatly affected areas alternating with healthy bowel wall, the whole picture suggesting a subacute or chronic condition rather than the acute one seen in bacillary dysentery.

The lesions consist of thickening of the bowel wall, with scattered ulcers. These ulcers are deep and involve the mucosa and sub-mucosa and often reach the circular muscular layer. The base of the ulcer is dirty, its edges are undermined and often adjacent ulcers communicate by sinuses in the sub-mucosa. In some cases the necrosis is so extreme as to produce the condition known as gangrenous colitis, in which whole areas of the colon slough and perforation with consequent peritonitis may occur. In autopsies in such cases the bowel is found to be so necrotic that it is impossible to remove it without tearing.

That the ulceration in cases of amœbic dysentery is the result of necrosis rather than inflammation is evidenced by microscopic examination of sections through the bowel wall in the neighbourhood of the

<sup>1</sup> Read at a meeting of the New South Wales Branch of the British Medical Association on November 10, 1922.

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ulcers. A striking feature is the almost complete absence of the cellular infiltration associated with inflammatory reactions and microscopic examination of the stools in these cases confirms this impression. The stools of patients with amœbic dysentery contain surprisingly few cells of any kind except red blood cells; there are few, if any, polymorpho-nuclear cells to be seen and the macrophage cell, so frequently found in the stools of patients with bacillary dysentery, is absent.

#### Locality and Type of Lesion in Bacillary Dysentery.

The typical lesions in this infection are found in the caecum, the ascending and descending colon and the lower part of the ileum. In the early stage the mucous membrane presents intense congestion with œdema and consequent thickening. In severe cases the formation of a false membrane due to necrosis of the mucosa may occur. The slightly later and more characteristic appearance, however, is that of innumerable small, superficial ulcers. These ulcers are shallow, rarely penetrating below the *muscularis mucosæ*, and have clean-cut edges. They are often so numerous that the mucous membrane presents quite a worm-eaten appearance.

Between the ulcers the mucosa shows evidence of inflammatory changes in congestion and œdema, unlike the picture seen in the bowel in cases of amœbic dysentery, where healthy, unaltered mucosa actually surrounds the ulcers.

Examination of sections of such a bowel shows the presence of an acute inflammatory process with engorged, dilated vessels and small-celled infiltration of the tissues in the locality.

The stools of these patients contain blood, pus and mucus. Frequently faecal material is absent. Wenyon and O'Connor<sup>(3)</sup> and Dew and Fairley<sup>(4)</sup> agree that preponderating mucus and bright blood mean bacillary dysentery and I think that the condition in febrile patients passing such stools should be considered to be due to such an infection until proved otherwise.

Microscopically the picture is characteristic. The cells present are numerous, chiefly red blood cells, polymorpho-nuclear cells and macrophage cells. The last-named arise from the endothelium of the blood vessels in the neighbourhood of the lesion and are large mononucleated cells. Dew and Fairley consider them to be of prognostic value, as they are most abundant in the healing stage of the disease. The careful cytological examination of the stool makes an early provisional diagnosis possible in these cases. The presence of much blood and pus, with or without macrophage cells, and the absence

of *Entamœba histolytica* should lead to the provisional diagnosis of bacillary dysentery.

#### Methods of Collection and Examination of Material with a View to the Laboratory Diagnosis of Amœbic and Bacillary Dysentery.

##### Amœbic Dysentery.

As has just been mentioned, the microscopic examination of the stool in bacillary dysentery often makes a provisional diagnosis possible while the results of cultivation of the material is awaited, but in the case of infection with *Entamœba histolytica* the same does not hold good. The presence of blood and mucus, in the absence of other cells, should arouse suspicion, but the only certain means of diagnosing amœbic dysentery is in the finding of the *Entamœba* itself, in either the amœboid or cystic stages. In either of these stages it is easily recognized, but between the two it passes through the pre-cystic stage, when its features are not nearly so characteristic. When possible, therefore, the amœboid or cystic stages should be sought, the former in acute or sub-acute cases, the latter when a "carrier" is suspected.

To increase the chances of finding active amœbæ, certain suggestions as to the collection and examination of specimens should be followed. The stool should be received in a warm, dry receptacle, free from antiseptics, and examined as soon as possible. Fragments of mucus or blood-stained material are most likely to reveal the presence of amœbæ; these portions sometimes literally teem with active forms, while examination of other portions of the stool may fail to reveal the presence of any.

The *Entamœba histolytica*, when warm, is amœboid and readily recognized from other amœbæ by the explosive nature of its movements, the differentiation between the ectoplasm and the endoplasm and the fact that red blood cells are the only ingested matter. When sluggish or in the pre-cystic stage recognition is not nearly so easy or so certain.

The cystic stage is usually sought for in "carriers" and is most likely to be found in firm, solid motions. Preparations may be examined unstained or stained with a watery solution of potassium iodide saturated with iodine. The characteristic features of these cysts are their size ( $6\mu$  to  $18\mu$ ), the number of nuclei present (not more than four) and the frequent presence of chromidial bodies.

In amœbic abscesses the amœbæ should be sought, not in the pus which escapes when the abscess is opened, but in material obtained by scraping the wall of the cavity. The cystic forms are not found



FIGURE I.  
Intestine in Amœbic Dysentery.  
(War Museum Specimen.)



in material from amœbic abscesses, but the diagnosis of such an abscess may be made if on examination of the patient's stools cysts of *Entamœba histolytica* are discovered. Dew has stated that a leucocytosis, even up to 40,000 per cubic millimetre, is usually found in patients with amœbic liver abscess and this may be an aid in the diagnosis between such an abscess and the enlargement of the liver due to the hepatitis which is frequently associated with amœbic dysentery.

#### Bacillary Dysentery.

In dealing with cases of bacillary dysentery, positive findings are most likely to be achieved if the stool is examined early in the disease and as soon as possible after defæcation. Martin and Williams<sup>(5)</sup> have shown that the chances of recovering *Bacillus dysenteriae* rapidly diminish with the duration of the disease. In a series of 1,050 cases they recovered the bacilli in 68% of those examined on the first to the fifth days, in 17.4% of those examined on the sixth to the tenth and in only 3.1% on the sixteenth to the twentieth.

In a report furnished to the Medical Research Committee by Dudgeon, Urquhart and Logan<sup>(6)</sup> on studies of bacillary dysentery amongst the British troops in Macedonia, great stress is laid on the necessity for early examination after defæcation. In civilian hospitals and with well-trained orderlies in base hospitals it is an easy matter to insist upon stools being brought to the laboratory for examination as soon as they are received, but with other than hospital or military patients and if the specimen has to be sent any distance, a real difficulty is encountered. The dysentery bacilli are peculiarly sensitive to the presence of acid and the above-mentioned workers found that if early examination was not possible, the addition of an equal quantity of 3% normal sodium hydroxide to the stool greatly increased the numbers of their positive findings. I would suggest that specimens which cannot be examined within six hours of evacuation (the time-limit set by the Medical Research Council

in their report on the "Laboratory Diagnosis of Acute Intestinal Infections"),<sup>(7)</sup> should be treated in this way.

The method of obtaining material by means of rectal swabs was used a good deal on the western front, but I think, when possible, it is better for the bacteriologist to select his own material from the stool.

It is difficult to improve on the technique introduced by Dr. C. J. Martin for the bacteriological examination of stools in cases of bacillary dysentery; I think this method was adopted by workers in the majority of the laboratories on the western front. It consisted in the careful selection of a

small piece of mucus, if this was present. After careful washing in sterile saline solution, the fragment of mucus was broken up and plated on to MacConkey's medium; the plates were incubated for eighteen to twenty-four hours and then examined for non-lactose fermenting colonies. Several of these were transferred to tubes of broth and after six to eight hours' incubation were examined for motility (all broth cultures with an odour were discarded). Non-motile organisms were then tested for fermentation action upon glucose and mannite. Those which formed acid and gas in glucose and mannite were discarded; those forming acid on glucose only were tested for agglutination with specific Shiga serum; those forming acid on glucose

and mannite with specific Flexner or Y serum. Agglutination in a dilution of 1 in 200 after incubation for four hours in a water-bath at 55° C. was considered diagnostic. Dr. Martin deprecated any more limited examination of the cultural and biochemical characteristics, particularly in the Flexner-Y group, since serum of high titre prepared against this group may not be specific when used in low dilutions.

#### Occurrence of Cases of Dysentery in the Civil Population.

As far as infection with *Entamœba histolytica* goes, apart from returned soldiers (both from the South African War and the Great War) and indi-

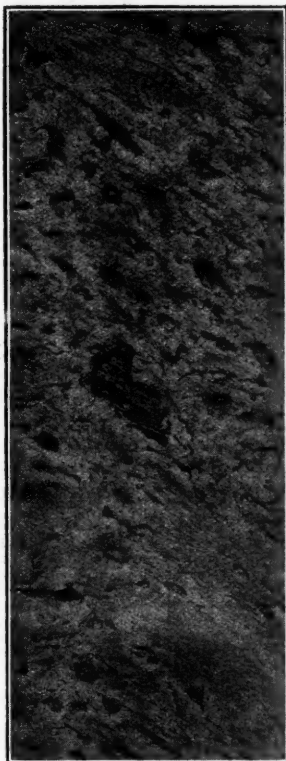


FIGURE II.  
Intestine in Acute Bacillary  
Dysentery.  
(War Museum Specimen.)

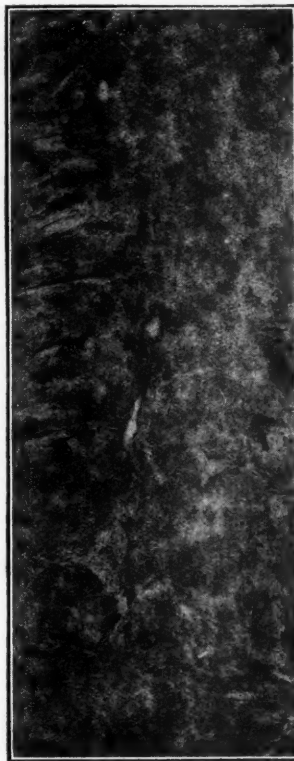


FIGURE III.  
Intestine in Chronic Bacillary  
Dysentery.  
(War Museum Specimen.)

viduals who have contracted the infection during residence in countries where the disease is endemic, cases occurring in the civil population are rare. In looking through the records of the Royal Prince Alfred Hospital I have been unable to find any case reported until returned soldiers began to find their way into the wards. Nelson and Shearman<sup>(8)</sup> reported one case in detail and notes of two others, but one of the patients had served in the South African war before coming to Australia and another had been four years in Australia, with no record of where he had previously lived. I have been told of one case in Sydney, occurring in an individual who has never been out of Australia.

I have not been able to find any record at the Royal Prince Alfred Hospital of cases of bacillary dysentery occurring in adults apart from returned soldiers, though quite possibly some of the cases diagnosed as ulcerative colitis without bacteriological examination should be included under this heading. It is perhaps rare for adults suffering from acute diarrhoea to be considered sufficiently ill to warrant admission to a public hospital. Often such patients only come for treatment when the condition has become chronic and when chances of recovering the causal organism are remote.

Dr. Patterson and Miss Williams,<sup>(9)</sup> of the Walter and Eliza Hall Institute, Melbourne, have drawn attention to the need for clinicians being on the look out for the possibility of a dysenteric infection in all patients passing blood and mucus in their motions and have suggested that all such patients be regarded as suffering from "clinical dysentery," that is, an acute infectious disease.

The work of Patterson and Williams on cases of epidemic diarrhoea in Melbourne during the summer months of 1920-1921 showed that of patients passing blood and mucus or muco-pus 71% yielded pathogenic organisms on culture and of these 66.6% were Flexner dysentery bacilli. Of their patients only ten were children, one a breast-fed baby, seven months old, whose stools contained blood and muco-pus and on culture yielded a Flexner dysentery bacillus.

With the strains of the Flexner-Y group isolated and investigated by these workers Dr. Penfold, of the Commonwealth Serum Laboratories, has prepared a polyvalent serum efficacious against these local strains.

On the suggestion of Dr. Tebbutt and with the permission of the authorities of the Royal Prince Alfred Hospital and the Royal Alexandra Hospital for Children, Dr. Marjory Ross, Pathologist to the latter hospital, and I investigated bacteriologically

the stools of all patients admitted to the wards set apart at the Royal Alexandra Hospital for Children for cases of gastro-enteritis during the summer months of last year and we hope to continue the work this summer.

I therefore ask you to accept the following remarks merely as some preliminary notes on our observations. Clinically and bacteriologically the cases we have seen have fallen into two main groups:

*Group I.*—The patients were previously healthy, well-nourished infants, whose illness had been acute in onset, with frequent motions containing blood and mucus, definite tenesmus, fever, rapid pulse and often collapse. If these patients are going to recover, they generally do so quickly and are discharged in ten to fourteen days. The stools of these infants are most characteristic, containing little or no faecal material, but much mucus and generally blood. It was from this group that we recovered *Bacillus dysenteriae* in twenty-nine cases (Flexner type in twenty-four and Shiga type in five).

*Group II.*—Infants with less good previous histories, whose illness was more subacute or chronic, or an exacerbation of a more or less permanent condition of intestinal unrest; they had frequent motions, greenish in colour, seldom containing blood, but frequently mucus. Bacteriological examination of stools from these patients was usually disappointing and only lactose-fermenting organisms were recovered on culture. The condition often dragged on indefinitely.

In France the patients suffering from a Flexner dysentery infection were usually much less ill than those infected with the Shiga bacillus. A Flexner infection was usually only severe in badly wounded men or in emaciated prisoners of war, but as Dr. Patterson remarks in the paper previously quoted: "An attack of diarrhoea, which may be little more than an inconvenience to healthy adolescents and adults, may thus be the cause of a severe and often fatal

illness in young children, old people and those with lowered resistance."

All the patients with Shiga infection in our series died.

We have still to see whether the strains of the Flexner-Y group of dysentery bacilli isolated here in Sydney will fall into the same groups, when tested serologically, as the strains isolated in Melbourne. In the meantime, the polyvalent serum prepared at the Commonwealth Serum Laboratories from the Melbourne strains is being used therapeutically at the Children's Hospital with, in some cases, almost dramatic results. This serum, prepared with several strains of Flexner-Y dysentery

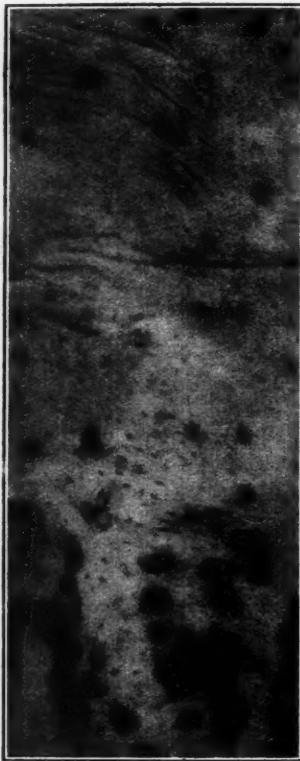


FIGURE IV.  
Intestine in Bilharzial Dysentery.  
(War Museum Specimen.)

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bacilli and a Shiga bacillus, was last season administered intra-muscularly in thirty cubic centimetre doses to all patients passing blood and mucus and repeated at twelve to twenty-four hours' intervals for five days. If on bacteriological examination the case was later proved to be due to an infection with Shiga dysentery bacilli, the monovalent Shiga serum was administered instead of the polyvalent Flexner-Y and Shiga.

Klein,<sup>(10)</sup> in an article on the serum treatment of bacillary dysentery, lays stress on the necessity for the administration of serum early in the disease; for adults he recommends a dose of sixty to one hundred cubic centimetres, given intravenously for preference. Our experience so far has gone to prove that serum is certainly most efficacious if administered within the first four days of illness.

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#### HEAD INJURIES OF WAR.<sup>1</sup>

BY BENJAMIN T. EDEY, M.B., CH.M. (SYD.), F.R.C.S. (ENG.),  
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Demonstrator in Pathology, Sydney University.

In this brief discussion of the subject of head injuries of the late war I will confine my remarks to the immediate effects and will not deal with the later results, since my opportunities for gaining knowledge of the latter were limited.

The head injuries of war may be divided into two groups: (i.) Those without a wound and therefore uncomplicated by bacterial infection and (ii.) those with a wound and where infection was almost invariably present. The former group comprised injuries

similar to those occurring in civil life, while the outstanding feature of the second group was the contamination by virulent bacteria.

It was soon appreciated that much could be done to eliminate the bacterial infection from head wounds as from wounds elsewhere and certain rules were laid down for their management.

It was further observed that men with head injuries travelled badly and that absolute rest and quiet were essential.

Special arrangements were made to accommodate these patients in hospitals or casualty clearing stations near the front until it was deemed safe to evacuate them.

The ideal treatment, therefore, was to perform any necessary operation as early as possible and as near the battle front as safety would permit. An X-ray examination was made with the especial object of locating foreign bodies and indriven fragments of bone. Local anaesthesia, preceded by morphine, was used in preference to ether, which had a tendency to increase hæmorrhage. The infected and damaged edges of the wound, including scalp, bone and *dura mater*, were excised. Foreign bodies or indriven fragments of bone were removed if within easy reach of the index finger; but this was done with extreme caution.

If the foreign body was beyond reach, but its exact position was known, it was permissible to use a scoop or forceps to aid its removal.

Drainage was used in all cases except the simplest.

It was advisable to excise all scalp wounds and to examine the bone beneath. If the bone showed any evidence of injury the trephine was used, for a very slight depression of the outer table almost without exception indicated a more extensive depression of the inner table. Three specimens in the collection illustrate this phenomenon very well.

The head injuries uncomplicated by open wounds and therefore free from the risk of infection included simple contusions of the scalp, various types of fracture of the skull, complicated or uncomplicated by injury of the cranial contents, and, lastly, injury of the cranial contents without demonstrable lesion of the bony case.

Here the chief indications for operative treatment were: (i.) Depressed fractures and (ii.) evidence of a severe or a progressive increase of intracranial tension, provided the patient had not reached the final stage of collapse.

The steel helmets worn by the troops caused a great reduction in the total number of head injuries and also lessened considerably the number of injuries complicated by an open wound. The steel helmet was a protection against bacteria as well as against steel fragments.

In looking over the specimens in this collection of head injuries of the great war it will be noticed that almost all the patients who lived for two or more days, showed evidence of cerebritis or meningitis and that the organisms most frequently present were streptococci. This indicates that it was possible to combat successfully the organisms of tetanus and gas gangrene, but the pyogenic organ-

<sup>1</sup> Read at a meeting of the New South Wales Branch of the British Medical Association on November 10, 1922.



isms, especially the streptococci, were more difficult to eradicate. The streptococci were the most elusive and probably the most destructive of all the bacterial infections against which our troops had to contend.

The infection reached the meninges either directly from the site of the wound or indirectly *via* the ventricular system, which carried the infection to the basal meninges.

The cause of death in gun-shot wounds of the head is generally interference with the bulbar circulation. This is due to a rise of intra-cranial tension above the normal, which is brought about by (i.) traumatic hæmorrhage and œdema and (ii.) inflammatory exudate and œdema resulting from infection. If the patient survived the initial effects of the trauma, his fate depended upon the number and virulence of any bacteria present in his wound.

Jefferson, in an exhaustive survey of two hundred and twenty cases of head injuries treated in 1918 in France, stated that he found it impossible to select cases for operation and that all should be given the chance which operation affords. He quoted Harvey Cushing's summing up on this subject:

There is no justification in withholding operation from those in whom a prolongation of life would appear to be undesirable; no tribunal is capable of passing such judgement and unexpected recoveries with unimpaired mental faculties sometimes follow what appear to be the most extensive cerebral injuries.



FIGURE I.

Scalp Wound over the Mid-Line of the Vertex. No fracture. Local extra-dural hæmorrhage. Intracranially much clot separating *dura* from brain and extending to the base, especially on the right side. Immediately beneath the wound, area of laceration of brain tissue, 2.5 x 3.7 centimetres, surrounded by sub-arachnoid hæmorrhage involving both hemispheres.



FIGURE II.

Through-and-Through Wound of the Frontal Region, causing comminution of the frontal bone, including the orbital plate, complete destruction of both frontal lobes and both eyes. Purulent meningitis. The patient lived for five days.

The difference in the results where the *dura mater* was not torn as compared with those where it was is well shown in Jefferson's figures.

Ninety-one patients in whom the *dura mater* was intact, all recovered, while of seventy-nine patients with laceration of the *dura* fifty recovered and twenty-nine died, a mortality of 36.7%. These figures only take count of those patients who survived the initial injury, and it was in these that sepsis was the principal cause of death.

It is not necessary that the ventricles should be opened primarily by the wound for a ventriculitis to be set up. It is more usual for the cortex overlying the ventricle to be contused and sown with bacteria. The encephalitis spreads until the ventricle is involved and the cerebro-spinal fluid is contaminated. The bacteria then travel rapidly through the ventricular system to the basal meninges. The infection of the meninges at the site of the wound is less dangerous because of the formation of protective adhesions which close the subdural and sub-arachnoid spaces.

Figures such as those presented by Jefferson show that the brain offers considerable resistance to bacterial invasion, providing it is given a reasonable chance by carefully conducted operative treatment. Even patients with cerebral fungus, which is always a manifestation of sepsis, frequently recovered.

The natural resistance of the brain tissue to bacterial infection, therefore, is one of the more im-



portant lessons to be learned from a study of the head injuries of the war.

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The following have been extracted freely:

(<sup>a</sup>) "Surgical Treatment of War Wounds," Printed for Circulation in the Third Army, British Expeditionary Force, France, 1917.

(<sup>b</sup>) Jefferson, Geoffrey: "The Physiological Pathology of Gunshot Wounds of the Head," *British Journal of Surgery*, 1919, Volume VII., No. 26.

#### GAS GANGRENE IN MILITARY AND CIVIL PRACTICE.<sup>1</sup>

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IN the demonstrations this evening there have been included many specimens illustrating the effects produced on the tissues by pathogenic anaerobes. The specimens have been grouped under two headings: (i.) Those met with in military practice and (ii.) those found in civil practice.

##### Gas Gangrene in Military Practice.

The mode of infection is similar in most instances. All cultivated soils are rich in anaerobic organisms originally derived from animal faeces and shell wounds are frequently contaminated by such soil. The anaerobic organisms present in wounds are conveniently classified under two headings, the saccharolytic group and the proteolytic group, of which the former are by far the more important.

The saccharolytic organisms most commonly found in infected wounds are *Bacillus welchii* (*Bacillus aerogenes capsulatus*, *Bacillus perfringens*), *Vibrio septique* (bacillus of malignant oedema) and *Bacillus adematensis*. They are responsible for the production of the spreading lesions of gas gangrene. The organisms of the proteolytic group, of which *Bacillus sporogenes* is the commonest type, exert their putrefactive effects at a later stage in the gangrenous process.

The war specimens illustrating gas gangrene may be subdivided into two classes. In the first of these the specimens show gas formation actually at the site of injury or along the track of the missile. In some instances the lesions illustrated

by these specimens are consistent with recovery by the patient, if appropriate surgical intervention was resorted to early enough. In this type of lesion there is a tendency in some instances for the gas infection to remain localized to one group of muscles, spreading longitudinally along them, but not laterally into the adjacent tissues. This is well seen in Figure I.

In the second class the lesions have been caused by organisms which have gained entrance to the blood stream just before death and have been carried throughout the circulation, their maximum effect being produced *post mortem* in the solid viscera, especially the liver, where glycogen is abundant (see Figure II.).

In most of the specimens the organisms have not been present in the viscera for a sufficiently long period before death for a vital reaction to have taken place. That is why the gas bubbles are not

surrounded by a yellow areola of necrosis or suppuration. Some of the specimens show an outer rind of tissue in which there are no gas bubbles, the central portion of the organ being so full of bubbles as to resemble a sponge. This contrast is due to the fact that, though the gas-forming bacteria had gained entrance to the organ just before death, no gas had been formed at the time of death, when the specimen was placed in the fixative, and bacteria in the outer zone, being accessible to the bactericidal effect of the

fixative, were killed, whereas the bacteria in the centre of the organ, protected from the fixative, multiplied and produced gas. This is further evidence that gas formation in the solid viscera is mainly, if not entirely, a *post mortem* effect.

##### Gas Gangrene Occurring in Civil Life.

This may be divided into two classes, according to the mode of infection:

Class I. includes those lesions in which, like the gas gangrene of military practice, infection is due to contamination of the wounds by soil or other material containing pathogenic anaerobes which originally came from animal faeces.

This class of lesion is not very uncommon and in the large metropolitan hospitals wounds infected with gas-producing bacteria are occasionally met with. As they are the exact counterpart, both clinically and pathologically, of those dealt with



FIGURE I.  
Gas Gangrene of the Leg Following a Shell Wound. Note the limitation of gas formation to one group of muscles.

<sup>1</sup> Read at a meeting of the New South Wales Branch of the British Medical Association on November 10, 1922.

in military practice they need not be further considered.

Class II. includes those lesions in which infection is not indirect by contaminated soil, but direct by the patient's own intestinal organisms.

Under this heading the first exhibit is a "foamy" liver removed from the body of a man who had a sarcoma of the femur discharging necrotic material through a fungating wound in the left buttock. The buttock was a common site for gas gangrene during the war, partly because so much muscle glycogen was present to cater for the saccharolytic needs of the gas-forming bacteria, but I suggest that in the present instance and possibly also in some of the buttock lesions in soldiers the wound was contaminated by the patient's own faeces.

The type of lesion in which infection by the patient's own intestinal organisms would be likely to occur, is uterine sepsis after abortion, particularly criminal abortion.

I would like to mention four cases of this nature. The first seems fairly definite and will be dealt with separately, the remaining three, which have much in common but are less definite, will be considered as a group.

**Case I.**—Three specimens from this patient are included in the Sydney University Museum of Morbid Anatomy: (a) portion of the heart, showing malignant endocarditis of the mitral valve; (b) one kidney, showing multiple small septic foci and many larger septic infarcts; (c) the spleen, showing several large septic infarcts and gas bubbles in large numbers in the centre of the organ.

The patient was twenty-nine years of age and two months pregnant when she had an abortion artificially produced; the uterus became septic, infection of the blood, presumably streptococcal or staphylococcal, followed and was later complicated by malignant endocarditis and septic infarcts in the spleen and kidneys. In addition, a gas-forming organism, probably a pathogenic anaerobe, gained entrance to the blood because the spleen, except for an outer rind of fixed tissue, is just like a sponge. It seems reasonable to suppose that the gas-forming organism gained entrance through the uterus and, in view of the fact that anaerobic gas-producing bacilli are present in the gastro-intestinal tract of the majority of individuals, that the source of infection in this instance was the patient's own faeces.

The notes of the other three cases are as follows:

**Case II.**—The patient was a woman, thirty-six years of age, who was admitted to the Royal Prince Alfred Hospital on February 25, 1913, at 11 a.m., with a history of vomiting, diarrhoea and bleeding *per vaginam* since the previous morning. She was two months pregnant and denied interference with the gestation. The onset had been sudden and she complained of severe abdominal pain and air hunger. She was intensely pigmented, almost black in colour; the liver dullness was diminished; the urine contained no blood cells, but was quite black, owing to the presence of blood pigment. The patient's condition gradually became worse and she died at 6.30 p.m. on the day of admission to hospital. At one stage of the illness acute yellow atrophy was regarded as a possible diagnosis.

At the autopsy an intense pigmentation of the whole body was noted. The lungs showed some congestion of the bases and a few adhesions at the left apex. The heart was soft, flabby and dilated. Free blood-stained fluid was found in the peritoneal cavity. There was not much evidence of general peritonitis. The spleen was enlarged, soft and mushy. The liver was soft, yellowish and riddled with small necrotic areas containing gas. The kidneys were congested and almost black. The uterus was enlarged, soft and almost rotten; there was a small perforation on top of the fundus through which purulent material exuded on pressure.

The organs were not further interfered with, as the case was reported to the Coroner.

**Case III.**—The third patient was admitted to the Royal Hospital for Women, Paddington, on September 21, 1913. She was twenty-six years old, married, with one child two years old. She complained of headache on the previous night at 10 p.m. Up to this time she had been in perfect health, except for morning sickness and amenorrhoea of two months' duration. She was pregnant. At 1.30 a.m. she complained of abdominal pain which was very acute. She denied

interference with the gestation in any way. The provisional diagnosis at 7 a.m. was a ruptured ectopic gestation. At 11 a.m. she was admitted to hospital complaining of very severe abdominal pain. The conjunctivæ were yellow and the skin of a bronze-like colour. The liver dullness was little if at all diminished. The urine (catheter specimen) was thick and chocolate-coloured. There was a dark brown precipitate throughout the specimen, which looked like cocoa. The guaiacum test revealed the presence of blood pigment. The abdomen was opened and free blood was found in the peritoneal cavity. The appendages on both sides were normal. The uterus had a large perforation in the fundus and looked rotten. It was removed and the appendages left intact. During the operation bile-stained fluid issued from the mouth and nose in a practically continuous stream. The patient was very collapsed after the operation. She gradually became more and more pigmented, until she was almost black. She had practically recovered from the anaesthetic when she died at 3 p.m.

An autopsy was performed on the next morning and revealed the following: The liver was studded with multiple yellow areas which were small and many of which contained gas. The kidneys and spleen were almost black in colour and were very soft and friable. There was blood-stained fluid in the right pleural sac and excess of pericardial fluid. There was no peritonitis. The uterus con-



FIGURE II.  
Showing the Sponge-like Appearance of a Liver Invaded Just Prior to Death by Gas-forming Pathogenic Anaerobes.

tained a quantity of decidua, but no ovum was present. The uterus appeared as though it had been curetted (it was not touched at the operation). The cadaver putrefied quickly.

**Case IV.**—A female, twenty-two years of age, was admitted to the Sydney Hospital on June 1, 1921. The doctor attending her prior to admission submitted the following history: "Patient appears to have been well until yesterday afternoon (May 31, 1921), when she had a series of severe rigors and she has been vomiting ever since. She is intensely jaundiced, her skin being of a mahogany colour. She is menstruating freely. The liver dulness seems to be much diminished. The provisional diagnosis is acute yellow atrophy of the liver." The patient complained of severe abdominal pain. Though the skin of her body was mahogany brown, the sclerotics appeared yellow. The patient was single, but had had one child. She admitted attempting to bring on abortion by means of a hairpin. A blood count showed that the red cells were reduced to 1,370,000. One nucleated red cell with a dense, mulberry-like nucleus was seen. The leucocytes totalled 52,400, of which 86% were neutrophile cells. The vomit was bright green and the faeces brown, showing that there was no obstruction to the bile ducts. The urine was black, with a brown "cocoa-like" deposit. Films from the deposit showed granular and amorphous material, but no healthy red cells. A few epithelial cells were present, but there were no casts, pus cells, leucin crystals nor tyrosin crystals. These findings were confirmed by Professor Priestley, whose report on the urine stated that the pigmentation was due to methæmoglobin and that no bile was present.

An autopsy was performed fourteen hours after death. Both lungs were found to be solid with œdema. The spleen was quite as firm as usual, but was paler than normal. The kidneys were very large and congested, due to hæmorrhagic catarrhal nephritis. The uterus contained a large amount of greenish white material (? decidua), the appearance resembling that seen in a septic diphtheritic throat. Films from this material showed a multiplicity of organisms, including some large Gram-positive bacilli, which, however, were morphologically somewhat different from the typical *Bacillus aerogenes capsulatus*. No bacteria were found in sections of the organs.

#### Comment.

The last three cases have much in common and probably belong to one clinical and pathological entity. It is, however, fully appreciated that they have not been investigated with sufficient care to permit of definite deductions being drawn. This is partly due to the fact that they were all Coroner's cases and opportunities for investigation were necessarily somewhat restricted. It seems probable that the pigmentation in all three was due to blood pigments set free as a result of the action of some hæmolytic agent derived from bacteria in the uterus and possibly to a slight extent in the circulating blood. Probably the commonest cause of uterine sepsis ending fatally is streptococcal infection and some varieties of streptococci are hæmolytic. Streptococcal septicæmia, however, is so common and cases like these three are so rare that the explanation seems to be not altogether adequate. The fact that in two instances gas bubbles were found in the liver strongly suggests that the uterus was infected by pathogenic anaerobes, possibly from the patient's own alimentary tract, as in Case I. of this uterine series. Case IV. makes one hesitate to draw conclusions from the previous two, because in it no gas bubbles or bacteria were seen in the organs, even though many hours elapsed between death and autopsy.

In numerous autopsies performed by me on the bodies of soldiers dead of gas gangrene it was found

that, not only were gas bubbles formed in the solid viscera, particularly the liver, but the bubbles of gas in the heart blood frequently showed a peculiar pinkish colour due, as I thought, to alteration of the blood pigment; the endocardium, valves, aortic intima *et cetera* were often dark red or even black in colour, due, as I thought, to staining by blood pigments set free after the bacterial toxins had exercised their lytic effect on the red cells. These facts notwithstanding, I must admit that the intense, generalized pigmentation seen in these three women was not observed by me in the soldiers who died from gas gangrene during the war.

#### OCULAR SYPHILIS.

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SYPHILIS is one of the most universal diseases. It enters into the ken of every specialist. Its diagnosis and its treatment are the daily occupation of the general practitioner and he must be prepared to carry out both. Nor does it present any difficulty for him, so many and varied are the clinical and bacteriological tests, so easy of administration are the newer forms of treatment. It is my aim, while discussing the value of the newer forms of diagnosis and treatment, to show that, generally speaking, nothing is so satisfactory to both patient and doctor.

#### Ocular Manifestations.

Among the ocular manifestations of syphilis may be cited the following: primary chancre of eyelids, conjunctiva or lachrymal sac, congenital lachrymal obstruction, mucous patches and macular and papular syphilides of lids, secondary and tertiary ulceration of conjunctiva and lids, gummata of the lids or orbital periosteum, syphilitic disease of the lachrymal gland, chronic sinusitis with proptosis, inflammatory pseudo-plasm of the orbit, interstitial keratitis, simple plastic iritis, congenital syphilitic iritis of infants, gumma of the iris, ciliary body or chorioid, disseminated chorioiditis, diffuse chorioidoretinitis and acute neuro-retinitis, papilloedema from gumma of brain, optic atrophy, vascular sclerosis (endarteritis and peri-vasculitis), *ophthalmoplegia interna* and *externa*, syphilitic headache simulating eye-strain and the ocular signs of *tabes dorsalis* and general paralysis (para-syphilis). Thus the eye may be affected in every stage and I believe there are various strains of syphilis. It may be very severe or it may be a mild infection becoming attenuated by a strong natural resistance as years go on. I once saw a medical man infected in the finger while attending a midwifery case. So severe was the infection that, in spite of all treatment, he died. Once in the back-blocks of Western Australia I saw a man with a neglected secondary syphilis, the most severe and extensive form of papular syphilide. This man also died shortly afterwards. On the other hand, how many patients there are who cannot remember having had a chancre or a secondary rash!



Some special tendencies of the disease are noted in the investigation of ocular syphilis. I have seen an elderly man with the scars of an old infection, his daughter half blind from interstitial keratitis and her little boy similarly affected—syphilis in the third generation. Interstitial keratitis is nearly always congenital, yet I have seen it as late as at thirty-nine years of age. If a patient presents typical Hutchinson's teeth, you may be sure that sooner or later he will also develop interstitial keratitis. Nearly always both eyes are affected, yet I have seen an instance in which fifteen years elapsed between the infection of the first eye and that of the second eye. Interstitial keratitis is extremely resistant to treatment; it has developed in a young patient who had been taking mercury since birth; it has occurred in one salivated during the treatment of other ocular manifestations. It occurs in other diseases, tuberculosis and trypanosome infection. An eminent London oculist received a telegram to come down to an English duke. He caught an early train, to find on his arrival that it was the hounds he was to see and not the duke himself. Many of them were valuable animals, worth some £200 apiece, and they were suffering from interstitial keratitis due to trypanosome infection. If you give arsenic by mouth or intravenously you may find it in many of the body fluids, but not in the aqueous of the eye. If you give an intravenous injection of arsenic and immediately draw off the aqueous, then in the newly forming aqueous fluid you will probably find the drug. May this indicate the explanation of the resistance of this form of syphilis to treatment? The same thing is seen in nerve syphilis when, if you give arsenic or salvarsan and later tap the spinal canal, you will find no trace of arsenic in the fluid; yet, if just after the salvarsan injection you tap the spinal canal and again tap it in twenty-four hours, then you will find that the fluid obtained on the second occasion will answer the tests for arsenic. May this in turn explain the greater resistance of parenchymatous as compared to interstitial or meningo-vascular syphilis, the resistance to treatment of general paralysis of the insane? If syphilis of the nervous system yields good results to injection of salvarsan, followed by immediate tapping of the spinal fluid, then interstitial keratitis might be more amenable to salvarsan followed by puncture of the anterior chamber. While in London I saw a girl with double keratitis whose vision was reduced to hand movements and so remained for months under non-specific treatment; a thorough course of salvarsan injections largely cleared the cornea and brought vision to  $\frac{9}{12}$ .

I have seen but two cases of primary chancre of the eye, but a case is on record of it occurring in the lachrymal sac and therefore presumably an invasion of intact mucous membrane by the *Spiro-nema pallidum*.

Forms of syphilis usually associated with later life may appear in the young, while secondary and tertiary forms may occur soon after infection. Juvenile tabes is well known; I have seen the condition in a child of twelve years and one of fourteen years of age and possibly some of the forms of ocular disease at present classified as abiotrophies, such as

cerebro-macular degeneration, amaurotic family idiocy and other forms of mental degeneration with optic atrophy, may be juvenile forms of general paralysis of the insane. I have seen gumma of the iris three months and optic neuritis four months after infection. External ophthalmoplegia is generally due to syphilis, but it may be due to twenty other causes, all of which must be investigated and excluded. While usually a serious complaint, it may indicate nothing more than muscular rheumatism and be cured by the extraction of a carious tooth. Unilateral acute neuro-retinitis is usually syphilitic, but I recently had a patient under my care who had four dioptries of swelling, no syphilitic history and whose serum did not react to the Wassermann test.

The ocular signs of para-syphilitic diseases are in themselves an intensely interesting study. The lesion associated with the Argyll-Robertson pupil is now believed to be in the decussating bundle of Meynert in the colliculo-nuclear tract; here the light reflex and accommodation fibres are separate. The Argyll-Robertson pupil is nearly always syphilitic, bilateral and associated with other signs of *tabes dorsalis*, yet it may occur in tumours of the *corpora quadrigemina* or pineal gland, in disseminated sclerosis, *encephalitis lethargica*, traumatic lesions in the region of the aqueduct of Sylvius, influenza, diphtheria, hysteria, epilepsy and in various neuroses. If it is unilateral a search should be made for some non-specific cause, such as a lesion in the orbit. The Argyll-Robertson pupil, however, and also ophthalmoplegia or optic atrophy, may occur as an isolated lesion in a syphilitic patient, to be followed later by other signs of degeneration due to the sudden breaking down of an encysted focus of spirochaetal infection. Thus also an isolated ptosis. Nor is every instance of a pupil which reacts to accommodation, but not to light, an Argyll-Robertson pupil, especially if one-sided. It may be due to syphilitic meningitis affecting the third nerve, just as any ophthalmoplegia may be due to the same cause or to causes which may be infective, traumatic, poisonous or hereditary in their nature.

One day at Guy's Hospital I saw two new patients in succession; the first had definite ataxia, some impairment of vision and reduction of fields and early optic atrophy; the second had advanced optic atrophy, but no incoordination. Yesterday I saw a patient similar to the first of these, with definite ataxia and other signs, but with a vision of  $\frac{6}{60}$  and good fields of vision.

At the Annual Meeting of the British Medical Association in Glasgow this year there was shown a patient with miosis, optic atrophy and active knee jerks. Some little time ago I examined a man with bilateral optic atrophy of primary type, whose blood serum yielded a Wassermann reaction and whose knee jerks were absent. Further investigation, however, showed that he was suffering from double chronic glaucoma with considerable rise of tension in both eyes. Both eyes were trephined on the following day.

The symptom-complex of syphilis or para-syphilis may present a single sign or any combination of signs. Optic atrophy of simple type may be syph-



ilitic or it may be due to high myopia, chronic glaucoma, poisoning by trivalent arsenic, injury to the retro-bulbar portion of the optic nerve, pituitary tumour or a number of other causes. One should hesitate to diagnose optic atrophy from merely glancing into the eye with an ophthalmoscope; each case requires a careful and painstaking investigation. Loss of knee jerks generally precedes optic atrophy, but the opposite may occur. Absence of the knee jerks is an affection of the lower motor neurones far removed from the site of the lesion in optic atrophy and even in tabes return of absent knee jerks has been recorded, indicating perhaps a partial recovery. Optic atrophy is not always a permanent condition. Cushing has shown that recovery may occur when it is associated with pituitary tumour. In the majority of the ocular conditions mentioned syphilis is the most common cause, yet it is not the only cause. In a recent number of *The British Medical Journal* two paragraphs appeared in the "Epitome of Current Medical Literature." The first recorded that amongst five hundred patients seen by a French doctor in the course of a year nearly 70% had either undoubted or probable syphilis. On the next page was a graph on the incidence of syphilis in the mortuary. Melchior, examining nearly six thousand bodies, found evidence of syphilis in 7.5%. A considerable discrepancy!

#### Diagnosis.

The diagnosis of syphilis became a very different thing with the discovery of the *Spirochaeta pallidum* and the introduction of the Wassermann test. Other tests, too, have come in since then, the colloidal gold curve in the spinal fluid, Vernes's test and the "sigma" reaction from Oxford. Some workers have thrown doubt on the value of the Wassermann reaction. It is said that the serum of the majority of babies at birth react; McDonagh is credited with the statement that a positive reaction given by a child at or soon after birth is no proof that the child is syphilitic. The serum reacts to the Wassermann test also in yaws and in some cases of leprosy, malaria, diabetes, scarlet fever and cerebro-spinal meningitis. On the other hand no reaction occurs to the Wassermann test in the serum of patients with a primary chancre in the early stages, in 1% of patients with secondary lesions, in 18% of patients with tertiary lesions, in patients suffering from latent syphilis and in patients who have been cured of syphilis. Generally speaking, in the very early primary stage the serum fails to react, in the late primary and secondary stages a reaction occurs and in the tertiary stage the serum may or may not react, according to whether or not the lesion is secreting the products of syphilitic inflammation into the blood. Something of this sort accounts for a failure to obtain a reaction in the serum of patients suffering from certain syphilitic lesions. A failure to obtain a reaction to the Wassermann test is not so much an indication of the cure of syphilis as of its encapsulation, just as tuberculous foci become encapsulated when the process heals. An encapsulated focus may subsequently break down and liberate products into the blood.

Discrepant results of the Wassermann test may also be explained by the personal equation and by the experience of the worker, by differences in the qualities of the lipoids and globulins of the antigen and serum employed, by different antigens giving divergent results and by the strength of the Wassermann reaction undergoing definite daily variations. Kilduffe found instances of apparent syphilis in patients whose serum reacted to one antigen only out of three, while Fowler found a large proportion of apparently non-syphilitic husbands of undoubtedly syphilitic wives. In spite of these discrepancies, the value of the Wassermann test is undoubted and it has stood the test of time. In doubtful cases several tests should be applied, or a larger quantity of serum used. If a human blood cell suspension is employed, then only Group IV. blood should be used. In latent syphilis a provocative dose of arseno-benzol or a short course of mercurial treatment may arouse the formation of antibodies and so develop a positive reaction. The provocative dose is 0.3 to 0.45 gramme and three weekly doses may be given, but if syphilitic infection be present, the result should show in a week.

Some workers have obtained positive Wassermann reactions in 100% of patients with primary and in 99% of those with secondary lesions. Perhaps more attention should be paid to the quantity rather than the quality of the phenomenon in the Wassermann test and this is where the "sigma" test of Dreyer and Ward is distinctly superior, showing greater reliability and sensitiveness, facility of manipulation and a quantitative degree of reaction varying from 0 to 1,600 units. The results of the test may be recorded in the form of a chart and the falling graph shows the progress made by the patient. This test is described in *The Lancet*, 1921, Volume I., page 956. It is a flocculation-precipitation test, the greater the agglutination by a syphilis serum, the larger and coarser will be the particles in suspension and the greater will be the reaction.

The colloidal gold test has its place in the diagnosis of neuro-syphilis rather than in ocular syphilis. It consists in making ten saline dilutions of the spinal fluid, adding the gold-sol reagent and interpreting the results by the degree of precipitation. Perhaps some day it may be possible to get a polarimeter test for a syphilitic blood serum which will enable clinicians to test a blood in ten minutes instead of two days.

Opinion seems divided as to whether the Wassermann reaction is of any value as a guide to treatment. Investigating patients with interstitial keratitis under treatment at one eye hospital, I found that it was quite common to obtain a reaction to the Wassermann test in the serum of a patient after a thorough course of treatment, though the serum of the same patient failed to react on as many as four other occasions. Langendorff, however, found that, although the onset of keratitis in the second eye could be prevented in 80% of his patients, yet the serum reaction to the Wassermann test remained practically unaltered before and after treatment. It is here that I believe the "sigma" test to be a better

guide than the Wassermann and a better guide than the progress of the clinical symptoms. If treatment is continued until the "sigma" reaction cannot be produced for a period of two years, we may regard the patient as cured.

#### Treatment.

Treatment may be described as general and special. Special treatment will include administration of drugs of the three principal groups—the salvarsan group, the mercurial group and the iodine group. No one of these three can be dispensed with and each has its own special indications and value. There is no form of syphilis which cannot be treated with advantage by drugs of the salvarsan group. There is no form of syphilis which should be treated with salvarsan alone, without the assistance of mercury.

Use of the salvarsan group, however, is particularly indicated in the more acute manifestations, such as primary and secondary syphilis, and in those types of other manifestations which are specially resistant to treatment by the mercurial and iodine group. Mercury is necessary to all forms of syphilis. In the later stages it acts upon the vessels and lessens the tendency to endarteritis. Potassium iodide is valuable in the fibrosis which occurs as a sequel to syphilis. Potassium iodide should not be given at the same time as the salvarsan group. The iodides liberate free iodine in the presence of necrotic products; if then salvarsan is freely present in the blood and tissue fluids, this iodine would tend to liberate arsenic in poisonous form with dangerous results to the patient. As salvarsan goes on being excreted for about three weeks after administration, an interval of this length should be allowed to elapse before iodides are given. Since the introduction of salvarsan remedies the treatment of syphilis has gradually increased in magnitude and severity from the original single dose, which was to have cured the patient at once, to the present elaborate system of six to twelve injections of arseno-benzol combined with mercury administration, repeated at intervals until the patient's serum fails to react to the Wassermann test, continued at intervals of three to six months until no reaction has been obtained in the patient's serum to the Wassermann test for two years continuously and followed by annual "refresher" courses of mercury, alone or combined with short courses of pentavalent arsenic for the remainder of the patient's life. Courses of arseno-benzol are minimum and maximum. A minimum course has six doses, a maximum course twelve doses, gradually increasing from 0.15 gramme to 0.6 gramme at weekly intervals. In the middle of the maximum course there should be an interval of a fortnight or more. If at the end of twelve doses a reaction is obtained with the Wassermann test and is still present for a month, then a second course of twelve injections is given and repeated at intervals until the serum fails to react. Mercury in some form is given at the same time as the arsenical preparation, but in the intervals of active treatment, while waiting for the blood to be tested, potassium iodide should be given.

Salvarsan in its original form is believed by many to be more effective in killing the spirochete than the "914" or "neo" class of drugs, but the modern derivatives of "914" are more practical in administration, especially for private work. "Nov-arsenobillon" is apparently more widely used in the British Empire than any other drugs of this group. These drugs are best given intravenously with a "record" type of serum syringe and I am accustomed to use a hypodermic needle instead of a serum needle on the end of it. It is sharper, goes in more easily if the veins are small, causes less pain and a fresh needle can be used for each injection if desired. Withdraw a little blood into the syringe before injecting and you will feel certain the point of the needle is in the vein. I have used the superior longitudinal sinus in babies in place of a vein.

Mercury is best given, in private practice at least, in the form of pills by mouth, a favourite drug being green iodide of mercury, 0.015 gramme (one-quarter of a grain), made up to a 0.12 gramme (two-grain) pill. Intramuscular injections are better for getting the mercury into the system, but the pain and unpleasantness often cause the patient to discontinue before the course has been completed.

With regard to the safety of the salvarsan group, it must be ascertained with certainty that the patient has not got serious renal or cardiac disease. The former is the more dangerous, but the presence of a small amount of albumin in the urine is not of any great significance. In the more serious forms of nephritis the administration of arseno-benzol may cause anuria. Mercury, on the other hand, is not contra-indicated in patients suffering from renal lesions. Cardiac disease as a complication of ocular syphilis would not be a contra-indication for the use of salvarsan, but the first dose should be a very small one, say, 0.15 gramme, and should be increased by very small amounts.

Distilled water used in giving injections must be beyond reproach. It should have been distilled in the first place from glass and should be redistilled within twenty-four hours of its use. Distilled water kept for some days before use absorbs carbon dioxide and ammonia from the air and this causes poisonous effects in its use. Dermatitis and jaundice will be seen less often if these precautions are observed.

In dealing with tertiary lesions, 0.3 to 0.45 gramme should be given at once, but if in the presence of an ocular condition, such as a syphilitic chorioiditis, a smaller initial dose of 0.15 gramme should be given. The reason for this is that if the lesion is situated in a very delicate organ, deleterious effects in the neighbourhood may be set up by the destruction of parasites. Just as in tuberculous infection of the eye, you commence with a minute dose of bovine tuberculin, for fear of setting up a focal reaction of any consequence, so with arseno-benzol in syphilis. The great delicacy of the eye compared with almost any other organ in the body is illustrated in the case of minute emboli. It is probable that in many diseased conditions, such as the various forms of focal sepsis, minute emboli get

free in the blood stream. These emboli could be arrested in the very smallest arterioles in such important organs even as the heart or brain without causing anything in the way of definite symptoms; in the eye, however, the smallest defect or interference with vision cannot be overlooked. In the same way an ocular palsy may be increased by the injection, when one muscle was previously affected, two may subsequently be affected. If borne well, the dose may be increased to 0.45 or 0.6 gramme, but should seldom exceed 0.6 gramme for fear of severe reaction. These injections are combined with the administration of mercury. The subsequent history will vary according to the nature of the case.

A monthly dose of 0.3 to 0.45 gramme may be given while the mercurial treatment is continued. Continuous treatment in this way will soon produce a failure of response on the part of the serum to the Wassermann test. Many consider that a continual absence of reaction for a period of two years while under continuous observation may be regarded as a sign of cure. Others even then would make the patient continue to take mercury for the rest of his life; but I greatly fear that some of these patients would become confirmed neurasthenics.

#### THE TONSILS CONSIDERED BY A GENERAL PRACTITIONER.

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CURRENT medical literature and current surgical practice have raised the tonsils to a position of dangerous importance.

In a recent article in THE MEDICAL JOURNAL OF AUSTRALIA we read that they may be at the root of almost any pathological condition, even of the leucæmias and chronic interstitial nephritis. Their sin consists, we understand, in harbouring streptococci and slyly introducing them within the body's defences. Such a simplification of medicine fills us with delight. It is obvious that universal tonsillectomy, carried out immediately the babies are born, will add a score of happy and healthy years to human life and, incidentally, solve the problem of employment for our young and ardent graduates.

Still obstructive, unprogressive persons will arise, who will inquire closely into the evidence and reasoning upon which this momentous advance is to be made.

Let us in fairness listen to such an one, although only a general practitioner. He begins:

Let us consider the actual facts in our possession regarding the tonsils.

They are present in each and every human being. They consist of lymphoid tissue whose oral surface is bounded by stratified epithelium. Crypts formed by the enfolding of the epithelium are present in the oral surface. These crypts frequently contain various organisms. According to research at the

Children's Hospital, even in the most cryptic of tonsils these organisms are always external to the tonsil. The lymphoid centres of the tonsils manufacture white corpuscles.

No external or internal secretion has been traced to the tonsils. They are supplied freely with blood from four arteries. They are subject to pyogenic infection, to tuberculosis, syphilis and to tumour formations.

Lastly, the tonsils are part of an exceedingly complex mechanism, *id est*, the human body.

What probable suppositions are made about them? Only one, that they form part of the defensive system against hostile micro-organisms.

But from many of our modern therapeutists the impression is gained that the tonsils serve only as culture tubes for hostile organisms. Consequently, they assert that the removal of the tonsils will cure a multitude of diseases, for example, exophthalmic goitre, rheumatoid arthritis, acute or sub-acute nephritis, fibrositis *et cetera*, the point common to these diseases being that they are microbic in origin, although of this only the therapeutic proof seems to be procurable (excepting with all due disrespect the diagrammatic researches of Rosenow).

There is, however, another point common to them. Each and every one is a disease of indefinite, but not interminable duration. Each ultimately comes to an end; in recovery very often, even in those retaining their tonsils. This uncertain persistence renders the estimation of therapeutic values extremely difficult and, in consequence, each of these diseases has a huge list of remedies that once appeared successful to their users.

Should we do any more with tonsillectomy than append it to these lists? It has only the same support and it has more disadvantages than most of its fellows. I will enumerate them:

(i.) It is a mutilating operation, not free from risk even in the best hands. It has caused not a few deaths, directly from hæmorrhage, indirectly from abscess of the lung.

(ii.) It removes from a complex and not perfectly understood organism parts which we have reason to assume have an important function and so makes the surgeon assume an uncomfortable similarity to the small boy removing cogs from a clock.

(iii.) It hides from us our own ignorance and so hinders its abolition.

(iv.) It leads to a false standpoint and a false conception of our work; for example, I have seen tonsils removed when the cause of ill-health was really pulmonary tuberculosis.

In conclusion, let us endeavour to remember that the tonsils are a part of the body and, like all its parts, are liable to suffer from disease of the whole. A person with tuberculosis or syphilis is not so likely to have healthy kidneys as one not suffering from these diseases, so also his tonsils are likely to be less resistant to disease and to present an unhealthy appearance. The deduction is obvious. Treat the whole and not the part!



## Reports of Cases.

### A CASE OF TUBERCULOUS MENINGITIS.

BY WILLIAM E. GEORGE, M.B., CH.M. (SYDNEY),  
Resident Medical Officer, Royal Prince Alfred Hospital.

PATIENT W., a male, aged twelve years, was admitted to the Royal Prince Alfred Hospital on November 15, 1922, on account of headache and drowsiness of two weeks' duration. The family history was good, except that his only sister was "weak." He had had tonsils and adenoids removed six months previously. He had always lived in Sydney.

The headache was persistent in character and was situated chiefly in the frontal regions; at periods it became more acute. He also had loss of appetite and had had diarrhoea for a week previous to admission, but no vomiting. He complained of pains in the back of the neck on flexing his head and pains in the back of the thighs on flexing them.

The patient lay in bed in a somewhat apathetic condition, but answered questions readily and intelligently. His temperature was  $38.1^{\circ}\text{C}$ . ( $100.6^{\circ}\text{F}$ .), his pulse rate 64 and his respiratory rate 24. There was no dirotism. His tongue was dry and furred laterally. His throat was healthy in appearance. The abdomen was soft and there was slight tenderness in the right iliac fossa. The spleen was not palpable and the abdominal reflexes were present. The heart was normal in size, but systolic mitral and pulmonary murmurs were present. These murmurs were probably hæmic. The pupils were dilated, equal and reacted to light and accommodation. The ocular movements were normal and all cranial nerves were intact. The knee jerks were present, the plantar reflex was flexor and a slight Kernig's sign was obtained on both sides. There was also definite rigidity of the neck muscles. The urine did not contain any abnormal constituents.

A provisional diagnosis of enteric fever was made.

On the following day the result of the Widal test was reported; no agglutination of *Bacillus typhosus* had occurred. No growth had been obtained from a blood culture. There was a leucocytosis of 15,000.

On November 23, 1922, lumbar puncture was performed, clear fluid not under increased pressure being obtained. No bacteria were cultivated from the fluid; there was an increase in small lymphocytes. The patient's condition remained unaltered until November 26, 1922, *id est*, eleven days after admission. At this time the Widal test was again applied, but no reaction was obtained. No *Bacilli typhosi* were recovered from the feces or urine.

Further attempts to culture organisms from the blood also failed. The optic discs were examined, but no swelling was detected. The outline of the right disc was slightly blurred. The patient was still bright mentally and there were no cerebral symptoms or signs, except the persistent headache. The temperature on November 26 was  $38.9^{\circ}\text{C}$ . ( $102^{\circ}\text{F}$ .), the pulse rate 60 and the respiratory rate 24. He did not vomit throughout his illness.

On November 28, 1922, the patient had a sudden rigor, the temperature dropped to  $36.1^{\circ}\text{C}$ . ( $97^{\circ}\text{F}$ .) and the pulse rate later rose to 102. His temperature recovered rapidly and motions passed later showed no signs of hæmorrhage.

On December 2, 1922, the patient had a leucocytosis of 20,000, 90% being polymorpho-nuclear cells. He was becoming more drowsy. X-ray examination of the cranial accessory sinuses showed them to be all clear.

He gradually became more drowsy and on December 6, 1922, was unconscious. Here, for the first time, he developed localizing signs; a Babinski response was present on the left side and he had ptosis of the left lid with dilatation and fixation of the left pupil. Further examination of the discs showed that the left was also swollen and ill-defined, the right being as before.

On December 7, 1922, although the diagnosis was scarcely in doubt, a sub-temporal decompression was performed and the brain explored in the hope of localizing pus, in view of the polymorpho-nuclear leucocytosis. Increased

pressure was evident, but no pus was located. The patient did not recover consciousness and died next day.

At the *post mortem* examination old adhesive pleurisy of the whole of the upper lobe of the right lung was discovered; on section the same lobe was found to contain numerous caseous tuberculous nodules. Both cerebral hemispheres were greatly congested and the meninges in the vicinity of the *pons varolii* were hyperæmic and swollen by a great deal of subadjacent inflammatory exudate. This exudate was clear and showed increased lymphocytes; no organisms were isolated on culture.

The case was interesting in view of the differential diagnosis and the persistent leucocytosis with polymorpho-nuclear cell increase in an acute condition, evidently tuberculous from the outset.

I am indebted to Drs. Bickerton Blackburn and Collins for permission to report this case.

## Reviews.

### COURAGE.

Now, God be thanked Who has matched us with His hour,

And caught our youth, and wakened us from sleeping,  
With hand made sure, clear eye, and sharpened power

To turn as swimmers into cleanness leaping,  
Glad from a world grown old and cold and weary,  
Leave the sick hearts that honour could not move,  
And half men, and their dirty songs and dreary,  
And all the little emptiness of love.

Oh! we, who have known shame, we have found release  
there,

Where there's no ill, no grief, but sleep has mending,  
Naught broken save this body, lost but breath;  
Nothing to shake the laughing hearts long peace there  
But only agony, and that has ending;  
And the worst friend and enemy is but death.

Thus wrote Rupert Brooke, the young Cambridge poet, who died a soldier's death. Youth with its fire and zeal had its golden opportunity in 1914. Age, denied the more strenuous part, did its share in other ways and lived its own early days over again in contemplation of the feats of the younger set. To-day, after the establishment of so-called peace, age takes up the lyre and bids youth "carry on" and be courageous.

J. M. Barrie in his rectorial address to the students of St. Andrew's University takes courage as his theme.<sup>1</sup> He recounts many heroic deeds and bids his hearers be worthy of their heritage. Youth has won a place in the scheme of things and should have a voice in momentous decisions. A man must know what he means. Very few men—and great men too—know what they mean. Equally important is the advice he gives that his audience must never ascribe to opponents motives meaner than their own. They should make merry while they may. Yet lightheartedness is at best the gay companion of innocence and they soon trip away together, looking for something younger. Success in the attainment of the prizes of life will be useless unless accompanied by increased understanding. Barrie is very human. He criticizes the saying that a man is happy who can leave college with an unrepenting conscience and an unsullied heart. He may be happy, but he will be a sloppy, watery sort of fellow and, if red blood be in him, impossible. His reference to McConnachie is typical of the creator of Peter Pan. McConnachie is his unruly half, his writing half. He himself is dour, practical and canny. McConnachie is fanciful. They must beware of McConnachie, he will lure them off the high road.

The book is a small one. It can be read with both pleasure and profit not only by students about to graduate, but also by older practitioners and others.

<sup>1</sup> "Courage," by J. M. Barrie; 1922. London: Hodder & Stoughton, Limited; Sydney: Angus & Robertson, Limited; Post 8vo., pp. 47. Price: 2s. 6d. net.



## The Medical Journal of Australia

SATURDAY, JANUARY 6, 1923.

### A Retrospect.

"TIME and tide wait for no man." Those who would keep in the van must hurry along incessantly, striving, working, forging ahead, lest one fletcher of foot overtake them. The pace is set by the many; the individual is but a unit in the hurrying mass. Yet a pause may be sounded at each mile-stone, to take survey of the road and to see whither it is leading. A rapid glance into the immediate past may serve as a timely warning against progress along a blind alley or may indicate to the far-seeing a neglected side lane that may be worth while exploring. While time and tide move ceaselessly and men hasten in the eternal struggle for fame and wealth, we may pause for a moment to take stock of the year's progress, in the hope of finding something that will abide for the benefit of humanity for all time.

#### The Medical Profession in the Commonwealth.

With the gradual increase of the population of Australia there is a somewhat more rapid growth of the medical profession. Between the census years 1911 and 1921 there was an increase of population of approximately 18%. The increase during the last three years of the decade was about 2.5% each year. From the meagre information available it would seem that the-increment of members of the medical profession during the past three or four years has been nearly 5% each year. The medical schools in recent years have embraced an ever larger number of students. Some alarm has been expressed at the prospects for the future on account of the swelling ranks of candidates for admission to the medical profession. For the present there is little cause for misgivings. There is still room for every competent, hard-working medical practitioner in the Commonwealth and signs of overcrowding are not yet apparent. If those entering the profession are of the right educational and social calibre and if they

make it their personal affair to uphold the prestige and dignity of the medical profession, the future will be bright. More highly trained men are required for special tasks in the field and particularly in the peripheral fields, while the special branches of medical practice are attracting a larger proportion than formerly, with the result that the general practitioner, who forms the mass of the profession, need not feel an encroachment on his holdings. As will be pointed out, there is a harvest to be gleaned in the realm of preventive work and the workers as yet are few.

#### The British Medical Association.

Last year the attention of members was drawn to the important decision of the Council and of the Representative Body of the British Medical Association in regard to the change in the constitutional position of the overseas Branches. The amendments of the Articles and By-Laws necessary to bring about this change have received the final sanction of the Representative Body and of a general meeting of the British Medical Association. The Branches are now empowered to seek incorporation under the *Companies Acts* of the several States in order that they may carry out all the functions of the parent Association for the benefit of the medical profession and of medical science. A model Memorandum of Association with Articles has been drawn up by the Council for the use of those Branches that intend to take advantage of this newly-acquired right.

The preparatory work of the First Session of the Australasian Medical Congress (British Medical Association) has been successfully performed under the guidance of a powerful executive committee, with Mr. G. A. Syme as President and Dr. A. L. Kenny as Honorary General Secretary. Progress notes will be published in these columns at intervals to keep members informed and to awaken interest in the proceedings. With the hearty cooperation of the members the First Session of the new Congress should prove an unqualified success. It will be a scientific gathering; the work of the sessions will represent the *raison d'être* of the session. It is therefore hoped that all practitioners who are carrying out clinical or other investigations or who are engaged in original studies, will notify the honorary secretaries of the appropriate sections of their inten-

tion to contribute papers. Although the scientific work must take the foremost place, the social side will not be neglected and participants can be promised a pleasant as well as a profitable time in Melbourne during the week ending November 17, 1923.

The activities of the Branches have been noticeably increased during the past twelve months. Highly successful meetings at which scientific papers have been read and discussed, have been held and the interest of members seems to have become more evident. The Victorian Branch has found the library at the Medical Society Hall too small to accommodate the many members who are prepared to free themselves from the trammels of their practice for a short time to hear a first-class paper on an important subject. To meet this demand, arrangements have been made with the Walter and Eliza Hall Institute of Research in Pathology and Medicine at the Melbourne Hospital for accommodation and the meetings are now held in the lecture theatre of this Institute.

The meetings in the other Branches are also well attended and the standard of excellence of the papers read has improved during the last few years. In Sydney and Melbourne clinical meetings of the New South Wales and Victorian Branches respectively have been held at the large metropolitan hospitals and have proved eminently attractive and instructive. Recently the Queensland Branch has held clinical meetings at public hospitals; formerly these meetings were organized by the members of the staffs. In South Australia one meeting was held in the new Darling Building of the University of Adelaide and the interest of the members of the Branch was aroused in this admirably equipped addition to the medical school. The other meetings in Adelaide have been held in the stately Lister Hall. The Listerian Oration was delivered in May, 1922, by Dr. G. Rothwell Adam, who selected as his subject the influence of Listerism on obstetrics.

#### Medico-Politics.

The most notable event in the medico-political activity of the Branches during the year was the institution in the Victorian Branch of the office of Chairman of Committees. Dr. J. Newman Morris was elected to this position and has set a standard

which his successors will find difficult to maintain. The work of the Council is rendered more expeditious and at the same time more valuable. This expedient insures continuity of policy and coordination of work. The method adopted enables every member to attend the meetings of the Council sufficiently informed to enable the discussions to proceed without tedious and time-wasting recitals of facts. Dr. Newman Morris has a rare gift of compelling members of a committee under his chairmanship to concentrate their attention on the motions before the meeting. The Victorian Branch may be congratulated on the adoption of this parliamentary method and on having secured so admirable a chairman to inaugurate the innovation.

The arrangements under which lodge practice is being conducted, have proved satisfactory in all the States. No material alterations of the various model agreements have been introduced. In Victoria the opposition to the action of the Branch has almost disappeared and the lodge members are quite satisfied with the conditions under which they obtain their medical benefit.

Considerable concern has been manifested by the Council of the Victorian Branch in connexion with the clauses of the *Hospitals and Charities Bill* dealing with intermediate hospitals. Other provisions of this measure demanded the close attention of the Council and the views of the Branch were transmitted to the members of the Legislative Assembly by Dr. R. H. Fetherston and Dr. S. Stanley Argyle. The Bill has been amended in many important respects during the second reading and in the Legislative Council. The few remaining stages will probably be completed early in the year and it will then be included in the statute book. After assent has been given, the measure will be discussed in *THE MEDICAL JOURNAL OF AUSTRALIA*. It is of considerable importance, not only to the Victorian practitioners, but also to the medical profession throughout the Commonwealth on account of the principles involved.

Several new sections of the Branches have been formed and in Queensland a special sub-committee dealing with public health matters has come into existence. The Queensland Branch Council has collaborated with the Queensland Branch of the Public Health Association of Australasia and has evinced

much activity in questions relating to the prevention of disease.

#### Preventive Medicine.

The Commonwealth Department of Health has continued to develop the programme elaborated at its inception in 1921. Progress has been made in connexion with the organization of a branch of the Department to deal with tropical hygiene. A laboratory has been established in Rabaul and has been placed under the expert control of Dr. G. M. Heydon. Dr. R. W. Cilento has been appointed to take charge of the Australian Institute of Tropical Medicine and is collaborating with the Australian Hookworm Campaign in a study of the incidence of filariasis and malaria in Queensland. The significance of this appointment and the competence of Dr. Cilento to carry out the work to a successful issue have recently been dealt with in this journal.

Closely connected with the tropical hygiene branch is the work of the Australian Hookworm Campaign. It will be remembered that the invitation of the International Health Board of the Rockefeller Foundation which was extended to many countries to enter into an arrangement whereby the prevalence of hookworm disease could be ascertained and tried measures of control and cure applied, was accepted by the Federal Government in 1917 and by the Governments of the several States at later dates. The International Health Board undertook to provide medical experts to organize and supervise the work for a period of five years and to bear a proportion of the cost of the campaign. Dr. J. H. Waite was sent to Australia in June, 1917, and started a survey in Papua. Later, when the Queensland Government agreed to the proposals, he inaugurated a survey from Cairns to Rockhampton. Unfortunately Dr. Waite was compelled to relinquish his task on account of ill-health. For a time the work was left in the hands of Dr. S. M. Lambert, who handed over the control to Dr. W. A. Sawyer in July, 1919. Further negotiations with Dr. Victor G. Heiser, the Director for the East of the International Health Board, resulted in the extension of the collaboration in other directions. An expert in industrial hygiene was lent to the Commonwealth Health Department for a period of two years for the purpose of establishing a Branch to deal with

this important aspect of preventive medicine. Dr. A. J. Lanza has been working in Australia for about a year and has been collaborating with Dr. D. G. Robertson, of the Commonwealth Health Department. Colonel F. F. Longley has also been lent by the Board to organize a branch of sanitary control. By arrangement, Dr. Sawyer has now handed over the directorship of the Hookworm Campaign to Dr. W. C. Sweet and is to act as bacteriological adviser to the Director-General of Health for a period of one year. The contribution from the Board is also to benefit the filariasis and malaria survey. It will be seen that this generous and valuable international aid on the part of the Board has been of the utmost moment to Australia. The hookworm survey is practically complete and the foundation has been laid for the eradication of this wide-spread and dangerous infection. It now remains for the Commonwealth Health Department to organize a permanent branch in order that the work begun with the aid of the experts lent by the International Health Board may be continued permanently by Australians.

Reference has been made above to the work in industrial hygiene which forms part of the programme of the Department of Health. Much preliminary work has been accomplished and a number of large employers of labour have been stimulated to apply measures for the maintenance of health among their employees. The third chapter in the programme comprises the establishment in country areas of laboratories where the general practitioner may receive assistance in diagnosis and where public health laboratory investigations may be conducted. Progress is being made in this direction.

The medical service in the mandated territory of New Guinea is under the administration of the Governor, General Wisdom. There has been some modification in the medical service during recent months. Dr. A. Honman, who has been in charge since the medical arrangements were transferred from the military to the civil authority, has been made Director of Public Health. His staff is small, but some additional appointments have recently been made. Special officers are being engaged for venereal disease work.

For a considerable time several prominent mem-

bers of the medical profession in Queensland have demanded legislation restricting the use of lead in paint to diminish lead poisoning in children. It is claimed that the lead paint used for painting the railing of verandahs becomes dry and detached in flakes and powder and that this material is responsible for typical lead poisoning and for a form of optic neuritis met with not infrequently in Brisbane and elsewhere in Queensland. The legislature in Queensland has acquiesced and has passed a measure prohibiting the use of paint containing more than 4% of lead for outside painting to a height four feet from the ground. This enactment is to be held in abeyance until an investigation has been carried out into the question. This investigation is to be conducted by Dr. Cilento, on behalf of the Commonwealth Department of Health, with adequate assistance. We understand that the questions requiring elucidation are whether the eye affections are actually caused by lead absorption and what are the sources of lead that give rise to signs of poisoning in children.

An important matter that is receiving the attention of hygienists throughout the Commonwealth, is the problem of the high maternal morbidity and mortality in connexion with child-birth and the high infantile mortality. It has been suggested that the maternity bonus has been misused in the past and that a considerable part of the £750,000 paid each year to the mothers might be put to better use in the establishment of maternity hospitals and in the institution of other measures to improve the health and safety of the mothers and their babies. The Federal Committee of the British Medical Association in Australia has favoured this proposal in specific terms.

Much debate and some exercise of ingenuity have occasioned in regard to the improvement of the milk supply, especially in the large cities. This subject has been kept vividly before the public in Melbourne, more particularly by a few energetic medical practitioners. A scheme for the safe control of the supply and distribution has been made the subject of special legislation. The same subject has been examined by the Public Health Association of Australasia. A committee of this Association in Queensland has presented a report on

the subject, but the proposals for the adoption of certain stringent bacteriological standards of purity have not met with general acceptance.

#### The Plague Outbreak.

The plague outbreak in Queensland and New South Wales has apparently died out. Much highly important work has been accomplished in cleaning up danger points in Brisbane, Sydney and elsewhere. Observations in regard to the epidemiological spread of the infection have been carried out, especially in Sydney. Dr. W. G. Armstrong read a valuable paper to the members of the New South Wales Branch of the British Medical Association on this subject (see *THE MEDICAL JOURNAL OF AUSTRALIA*, May 20, 1922, page 546).

#### Medical History of the War.

After very prolonged negotiations between the Commonwealth Government and the Australasian Medical Publishing Company, Limited, the Government has recognized the national importance of the publication of a history of the Australian medical services in the great war. It has consequently relieved the Company of the financial responsibility of undertaking this task and has entered into an arrangement with Colonel A. Graham Butler, D.S.O., formerly the Medical Collator in the War Records Section. Colonel Butler will be the editor of the "Medical History" and will produce the book under the ægis of the Commonwealth Government with the aid of men whose special experience in the several phases and fields of the war render them competent to handle the work. Colonel Butler's peculiar knowledge, his almost unique experience and his high reputation impelled the Australasian Medical Publishing Company, Limited, to recommend the Government to secure his services for this difficult work.

#### Medical Education.

The overdue reform in medical education has been the subject of much discussion and many endeavours to find a plan for a new curriculum that would satisfy all interested in this subject. The modifications introduced in the medical schools of the universities of Sydney, Melbourne and Adelaide are half-hearted measures which ease the position for a brief spell, but are in effect merely temporary expedients postponing the essential re-arrangement.



The General Medical Council recently passed certain resolutions dealing with the curriculum and sent these resolutions and recommendations to the universities of the outposts of Empire. The Council has the right to require the adoption of these new principles, since the registration in Great Britain of colonial graduates can be withheld if the Council is not satisfied with the course and examinations. Many of the recommendations coincide with the suggestions put forward in 1919 by the Edinburgh Pathological Club. Similar proposals adapted to Australian conditions have been made by a committee of this journal.

During the year 1922 Sir John Macpherson has been appointed to the new chair of psychology at the University of Sydney. Dr. J. I. Hunter has recently been appointed full Professor of Anatomy at the University of Sydney; the appointment will take effect on March 1, 1923. The medical profession is still awaiting the appointment of professors of preventive medicine at the three universities with medical schools. Although the University of Queensland has not yet a medical school, Dr. L. P. Lowson has been appointed Professor of Medical Psychology.

The first post-graduate course at Sydney was held in January, 1922, under the direction of the University Extension Board. Preparations are complete for the holding of the second course. The experience gained in January, 1922, has been valuable and a few defects in organization have been recognized and remedied. The Melbourne Permanent Committee for Post-Graduate Work continues to exert a strong influence in medical education. The Committee has conducted an admirable course in obstetrics and the usual general course in November. In addition, series of lectures have been held on special subjects.

#### Medical Members of Parliament.

At the recent general elections for the House of Representatives Dr. Earle Page, the leader of the Country Party, defeated the Nationalist candidate at Cowper by a large majority. In the Calare electorate Sir Neville Howse, V.C., recently Director-General of Medical Services, wrested a seat from the Labour member by a substantial majority. The congratulations of the profession are extended to both members on their successful candidature.

#### "The Medical Journal of Australia."

In August, 1922, the Directors of the Australasian Medical Publishing Company, Limited, considered a proposal to extend the printing arrangements to enable THE MEDICAL JOURNAL OF AUSTRALIA to cope with the ever-increasing amount of scientific and professional material. The size of the journal cannot be increased under the existing arrangements and its utility to the Branches of the British Medical Association in Australia and to the medical profession must remain restricted unless the printing plant is enlarged and new methods are introduced. By the installation of more machinery the foundation would be laid for an organization which would be able to serve the needs of the medical profession in the future. The proposals entail the purchase of type-setting machines and printing presses, so that the Company would have complete control over the machining as well as over the type-setting. At first the size of the journal would be increased to a relatively small extent. The Company would be in a position to publish the *Transactions of Congress* and to assist the medical profession in many other ways. This proposal was submitted by the Directors to the several Branches of the British Medical Association in Australia for the purpose of ascertaining whether the Branches would accord to it their general approval and whether the members would be prepared to take up debentures to enable the Company to purchase the necessary plant. The Victorian, South Australian, Queensland, Western Australian and Tasmanian Branches held special meetings at which the proposals received general approval. A meeting of the New South Wales Branch has not yet been held. The policy of expansion involves an enlargement of the organization and the enlistment of more workers. The future of the journal can only be secured if medical practitioners are trained in medical journalism to carry on the work for the benefit of the medical profession in the Commonwealth and for the advancement of medical knowledge. It is hoped that the programme for the extension of the activities of the Australasian Medical Publishing Company, Limited, will be introduced in the course of the year 1923 and that the medical profession will reap the benefit of this extended activity without undue delay.

## Abstracts from Current Medical Literature.

### PHYSIOLOGY.

#### Artificial Respiration.

R. BURTON-OPITZ (*American Journal of Physiology*, August, 1922) has made a comparative study of the different methods employed in artificial respiration by a new spirometer test. Experiments were made on animals as well as on man. A spirometer was used which registered the movements of the tidal air as a continuous line upon the smoked paper of a kymograph, showing every alteration in its volume. In the experiments on men the subject was first placed in a supine position with the head slightly elevated and the arms adjusted at the sides of the body. After a certain period of rest he was permitted to breathe through the spirometer for two minutes, in order to obtain a fair value of the volume of his tidal air. Shortly thereafter he was again connected with the spirometer. He then relaxed fully in partial inspiration, while the operator completed two or three artificial respirations. By this arrangement it was possible to obtain consecutive measurements of the amount of air moved normally and that moved by the compressions. The method of Howard, when practised with proper care, yielded only about one-half of the normal tidal flow. Accordingly, to equal the normal volume of the respiratory air per unit of time, the frequency of compression must be increased to something like twenty-five to the minute. The efficacy of the method may be progressively diminished by applying the hands at levels higher than that of the xiphoid cartilage. Stress has been placed by Sylvester upon the fact that the upward movement of the arms tends to expand the chest and to cause air to flow into the pulmonary passages. The spirometric measurements prove that the amount of air which may be moved by this means, is so small that it cannot possibly serve a practical purpose. Schafer's method yields an ample quantity of air, even if the rate of compression is not increased above normal, and, furthermore, the force which must be applied each time to attain this end, need not be considerable. It is an easy matter to exceed the normal volume of the tidal air by as much as one hundred to one hundred and fifty cubic centimetres. The author holds that these experiments fully confirm the statements of Schafer that the "prone pressure method" is the most effective.

#### Influence of Hydrogen Sulphide on Respiration.

H. W. HAGGARD AND YANDELL HENDERSON (*American Journal of Physiology*, July, 1922) have investigated the effect of sulphuretted hydrogen on the respiration, using dogs as experimental animals. The body has the capacity to handle sulphuretted hydro-

gen up to a certain limit entirely without ill-effect, but a slightly larger amount is quickly fatal. It is an acute poison comparable to cyanide and yet it is frequently found in considerable amounts in the intestines, so that perceptible quantities may be excreted in the breath of persons who are virtually healthy. When a dog breathes air containing approximately five volumes of sulphuretted hydrogen in ten thousand volumes, death occurs only after a lapse of many hours of continued exposure and is then apparently due to oedema of the lung. With double this concentration or 0.1% in the inspired air death occurs in fifteen to twenty minutes, after violent hyperpnea followed by *apnea vera*. With higher concentrations death occurs after a few violent gasps. Sodium sulphide (two milligrammes per kilogram), when injected intravenously, liberates sulphuretted hydrogen in the blood and produces hyperpnea followed by *apnea vera*. This does not occur after section of the vagi. Apparently, therefore, the stimulating action of sulphide upon respiration is chiefly due to irritation of the afferent endings of the pulmonary vagi. On the respiratory centre small amounts of sulphide are generally without perceptible effect. Larger amounts paralyse respiration. During the hypopnea which sulphides induce, an excessive loss of carbon dioxide occurs and the blood alkali is reduced by the acapneal process just as in hyperpnea due to ether, low oxygen percentage, the presence of carbon monoxide or nervous excitement.

#### Physiology of Human Skin Capillaries.

UNTIL the last few years all that was known of the physiology of the small vessels in the human skin had to be inferred from the colour changes, the general condition and temperature of the skin, from blood pressure fluctuations and from what might be assumed by analogy from observations made on animals, such as the frog. E. B. CARRIER (*American Journal of Physiology*, August, 1922) has investigated the reactions of the capillaries in the human skin to various drugs *et cetera* by the use of the Lombard technique. A drop of paraffin oil was placed on the skin, usually at the base of the nail, light from an arc lamp was focussed on the skin and examination made with a binocular microscope. Only a part of the capillaries in a given field are open at one time, but all may easily be stimulated to open by light pressure. Cold, when extreme, paralyses the capillaries which open up and ultimately fill with venous blood. Adrenalin in concentrations from one in one thousand to one in one hundred thousand produced contraction of both capillaries and arterioles. "Histamine" in concentrations of one in one thousand up to one in ten thousand produced dilatation of the capillaries with hastening of the blood stream. Pituitrin in concentrations up to one in one hundred produced contraction of the capillaries. All the observations coincide with the view that the diameter of the capillaries is not neces-

sarily dependent on the pressure in the arterioles, but rather on their own tone and state of contraction. Normally they contract or relax independently of the pressure behind them, but in response to local or general stimuli.

#### Heat Production in Muscle.

WHEN a muscle contracts, there are two distinct phases in the production of heat, one occurring during the contraction, an anaerobic process, and the other in the period after the contraction, mainly an aerobic process. W. HARTREE AND A. V. HILL (*Journal of Physiology*, July, 1922) have studied in detail the heat production in the recovery stage. About 1.5 times as much heat is produced in the recovery stage as in the initial stage, when the recovery takes place in the presence of abundant oxygen. In the absence of oxygen the heat produced in the recovery stage is about 0.5 times that in the initial stage. There is good evidence to show that when a muscle contracts, lactic acid is formed from glycogen and that during the recovery process part of the lactic acid is oxidized to carbon dioxide and water and the rest resynthesized to glycogen. The heat production in the recovery stage starts at a low level, rises to a maximum and then falls to zero, the whole process occupying about ten minutes at 20° C. with frog muscles. The recovery process evidently takes place in two stages. As a result of the experiments it is concluded that in the oxidative removal of lactic acid, from one-fifth to one-sixth of the lactic acid is burnt, the remainder being restored to glycogen. The total initial heat production is about two hundred and eighty-five calories for each gramme of lactic acid set free. This corresponds to the heat evolved in the production of lactic acid from glycogen and its neutralization chiefly by the alkaline protein buffers of the muscle. It is concluded that these chemical processes are the only ones of importance occurring in the initial phases of contraction, the production of acid leading to a rise of tension, its neutralization to relaxation.

### BIOLOGICAL CHEMISTRY.

#### Absorption of Iodine by the Thyroid Gland.

H. B. VAN DYKE (*The Journal of Biological Chemistry*, September, 1922) has studied the distribution of iodine in the hyperplastic thyroid gland of the dog after the intravenous injection of compounds containing iodine. It had been shown previously that the thyroid gland of the dog, especially when hyperplastic, possessed the ability to bind iodine almost instantaneously. The author had previously shown that there was relatively little difference in the ratio of the percentage of iodine in the cells to that contained in the whole gland. In this investigation he has studied the

ratio between the iodine in the cells and that in the total gland after iodization of hyperplastic thyroid glands. The methods used in the investigation have been to inject potassium iodide or thyroid colloid into the femoral vein, to dissect out the thyroid gland, to cut the gland into sections upon a freezing microtome, to suspend the sections in ice-cold Ringer's solution and to estimate the iodine by the method of Kendall. After the injection of fifty milligrammes to one hundred and fifty milligrammes of potassium iodide large amounts of iodine have been taken up by the thyroid gland. The ratio of the amount of iodine in the cells to that in the whole gland has been found to be less than in the resting gland, showing that little iodine was taken up by the cells or that it diffused rapidly into the colloid during the process of freezing the blocks. The ice-cold Ringer's solution dissolves the colloid material out of the sections. The glands have been removed from the dogs at periods of from ninety seconds to twenty-two hours after the injection of the potassium iodide. Up to seventy minutes no evidence of any retention of iodine by the cells has been noted, but in the experiments with an interval of over twenty hours, some additional iodine has been present in the cellular tissues, though the ratio of the amount of iodine in the cells to that in the whole gland has been less than in resting glands. When injections of thyroid colloid have been made into the femoral vein, little iodine has been taken up by the thyroid gland. In a further group of experiments dogs have received injections of solutions of the thyroid colloid taken from dogs which had received injections of potassium iodide one hour before the gland was removed. A considerable amount of iodine present in the colloid material has been transferred to the thyroid gland. Such glands which have already bound iodine from colloid, have been found capable of binding further amounts of iodine on a subsequent injection of potassium iodide.

#### Tetany and the Sodium Ion.

F. F. TISDALL (*The Journal of Biological Chemistry*, September, 1922) has studied the influence of the sodium ion in the production of tetany. He has injected dogs with disodium hydrogen phosphate and with phosphoric acid and has observed the concentration of sodium, potassium, calcium, chlorine and inorganic phosphorus in the blood serum together with the hydrogen ion potential and the carbonic acid combining power. His investigation has been undertaken as the result of observations on animals and children that the ingestion of alkaline phosphates and carbonates and the intravenous injection of sodium bicarbonate occasion electrical excitability of muscles and even tetany. The injections have been made slowly, extending over one hour. Injections of phosphoric acid up to one hundred and eighty milligrammes per kilo-

gram of body weight have produced no effects, but injections of disodium hydrogen phosphate have caused signs of profound toxemia. The rate of respiration has increased to one hundred per minute, the pulse rate to one hundred and eighty per minute. The power of standing has been lost, while the dogs have vomited freely. The muscles of the jaw and face have twitched and in one dog general tetany has followed the administration of one hundred and seventy milligrammes per kilogram of body weight. The chemical analysis of the blood serum has revealed a reduction in the percentage of calcium to about one-half, a threefold increase in the amount of inorganic phosphorus, no change in the acidity and no change in the concentrations of sodium, potassium and chlorine after the injection of disodium hydrogen phosphate. After the injection of phosphoric acid the blood serum has exhibited the same diminution in the concentration of calcium and a similar increase in the percentage of inorganic phosphorus, but it has shown a decided reduction in the amount of sodium and in the carbon dioxide-combining power of the serum. The acidity of the serum has increased in two out of three experiments. The author concludes that the sodium-calcium ratio is the important factor in the production of tetany. He points out, however, that in gastric tetany there may be no disturbance of this ratio.

#### Bases of Blood.

B. KRAMER AND F. F. TISDALL (*The Journal of Biological Chemistry*, August, 1922) have measured the concentration of sodium, potassium, calcium and magnesium in whole blood and in the serum derived from it, whence they have determined the distribution of these bases between the corpuscles and the serum. Their estimations have been made on relatively small amounts of human blood. The authors have observed a high degree of constancy in the concentration of sodium, potassium, calcium and magnesium in the serum of normal adults and of children. The proportion of corpuscles in the blood has been ascertained by the use of the hematocrit. The results show that the corpuscles are practically free of sodium and that the corpuscles contain no calcium. The concentration of potassium in human blood corpuscles is constant. About four hundred and twenty-eight milligrammes of potassium are present in one hundred cubic centimetres of corpuscles. This is about twenty times the amount found in the serum. From two to four milligrammes of magnesium are present in one hundred cubic centimetres of corpuscles. It would thus appear that potassium is practically the only mineral base in human corpuscles. On the average sodium forms 92% of the fixed base present in the serum, the weight of potassium being about double that of the calcium and magnesium together and the weight of calcium being double the weight of magnesium.

#### Estimations of Blood Sugar.

F. A. CSONKA AND G. C. TAGGART (*The Journal of Biological Chemistry*, September, 1922) have compared the method of estimating glucose in blood devised by Folin and Wu with that suggested by Benedict. Previous observers have found that Benedict's process yields higher figures than that of Folin and Wu. The authors found that both methods gave accurate results when tested with pure solutions of glucose of the same concentrations as are found in blood. The proteins are removed by picric acid in the method of Benedict and by tungstic acid in the process of Folin and Wu. Since Benedict's methods yield higher figures, it might be thought that tungstic acid precipitates some of the glucose or that the filtrate contains some substance reacting with picric acid but not with copper. The first hypothesis has been shown to be incorrect by applying the Folin-Wu technique to both the picric acid and tungstic acid filtrates. The results have been practically identical. On applying the Benedict technique to the filtrate after precipitation with tungstic acid, it has been found that it yields higher figures than by the Folin-Wu process of estimation, but less than those found by the method of Benedict for estimating glucose in blood. It is therefore evident that tungstic acid eliminates some of the substances other than glucose interacting with the picric acid used by Benedict for the estimation of glucose in the filtrates.

#### Insulin on Rabbits.

F. G. BANTING, C. H. BEST, J. B. COLLIP, J. J. R. MACLEOD AND E. C. NOBLE (*The American Journal of Physiology*, September, 1922) have studied the effects of the injection of extracts of pancreas into normal rabbits. For these purified alcoholic extracts of pancreas the authors suggest the name of "Insulin." These injections lead to a diminished concentration of glucose in the blood after a few hours. As a tentative basis of physiological assay the authors suggest as a unit the number of cubic centimetres which leads to a diminution of the percentage of glucose in the blood of normal rabbits to 0.045% within four hours. Such fluids are decidedly active in lowering the concentration of blood sugar in diabetic patients. As the amount of glucose in the blood becomes less the rabbits become hungry and thirsty and are fearful and hypersensitive. Later they may suffer from severe clonic spasms involving the entire body and lasting several minutes. Between the seizures the rabbits lie on the side in a more or less comatose condition, with shallow, rapid breathing. Subcutaneous injections of glucose restore the animal in a few minutes to an apparently normal condition. In animals dying after injections of "Insulin" a mucinous degeneration of the subcutaneous tissues of the abdominal wall is commonly observed.



## British Medical Association News.

### SCIENTIFIC.

A MEETING OF THE NEW SOUTH WALES BRANCH OF THE BRITISH MEDICAL ASSOCIATION was held at the Pathological Department of the University of Sydney on November 10, 1922, Dr. T. W. LIPSCOMB, the President, in the chair.

#### Pathological Specimens.

An exhibit of selected specimens from the War Pathological Collection had been arranged by Dr. W. KETH INGLIS with the permission of PROFESSOR D. A. WELSH. The specimens included small series of beautifully mounted lungs, illustrating the various effects of shell gas poisoning, limbs and crania illustrating the result of gun-shot and shell wounds, organs and muscles affected by gas gangrene, intestines from persons dead of bacillary and amœbic dysentery and bilharzial disease, *inter alia*. In addition, a few microscopical sections were displayed, as well as some macroscopical specimens from patients in civil life. The war collection attracted much attention and was greatly admired, more especially because each specimen was displayed to the utmost advantage. The natural colours of the blood clot and tissues had been preserved by fixation in Kaiserling solution and the sectioned surface of each organ and tissue was presented to unusual advantage by a special method of suspension.

#### Dysentery.

DR. MARJORY LITTLE read a short paper on amœbic and bacillary dysentery illustrated by projection pictures (see page 1).

DR. H. R. G. POATE expressed his indebtedness to Dr. Little for her very admirable discourse on dysentery. He had been forcibly reminded of the early days in Gallipoli, when they had dealt with so much dysentery at the hospital on Brighton Beach at Anzac. Nine out of every ten of their patients had suffered from some form of dysentery. In those days they had had no opportunity for making a bacteriological study. The patients had been given a dose of castor oil and some Dover's powder and had been starved even more effectively than when they were in the line. The men had been evacuated to the base as soon as possible. In all probability they had been dealing with both the amœbic and the bacillary forms. None of their patients had suffered a fatal hæmorrhage and the majority had been evacuated in moderately good trim. A very small supply of emetine had been available. It had been possible to make a limited number of experiments with it. A few of the patients reacted in a remarkable manner. Dr. Poate presumed that these men had been suffering from the amœbic form. The majority, however, had not reacted.

DR. A. H. TEBBUTT, D.S.O., stated that he had been very interested in Dr. Little's paper. It was very gratifying to find that a bacteriological survey in Sydney of summer diarrhœa was producing some results. He recalled the time that the late Dr. W. F. Litchfield had taken a great interest in this question and had carried out an investigation. He had failed to find either the Flexner or the Shiga type of dysentery bacilli. Shortly before this Morgan, at the Lister Institute in London, had carried out his extensive investigations and he, too, had failed to find either the Shiga or the Flexner bacilli. It would be remembered that, as a result of this work, Morgan No. 1 bacillus and its allies had received recognition. Since those days improved bacteriological technique had enabled them to make a considerable amount of progress. It was unlikely that the type of disease in Sydney had changed; the identification of the two forms of dysentery bacilli in connexion with summer diarrhœa had been due to better bacteriological methods. In regard to amœbic dysentery, it should be remembered that the cyst was necessary for the transmission of this disease. In the earlier days it had been thought that *Entamoeba histolytica* was confined to tropical and sub-tropical countries. Recent investigations had disclosed the fact that very many people were carriers of this protozoan. In England, for example, from 7% to

10% were carriers and yet amœbic dysentery was apparently very rare there. The majority of these people were in a state of equilibrium, by which was meant that the small ulcers were constantly healing up, while fresh ones were being formed. In Australia no satisfactory survey had been carried out to ascertain the incidence of this intestinal parasite. From time to time cases of amœbic dysentery were discovered. The higher incidence of amœbiasis in certain tropical regions was not due to climatic conditions, *per se*, according to Dobell, but to the more insanitary conditions of life. Intestinal protozoa produced very little active disease in man.

DR. HARVEY SUTTON, O.B.E., referred to the post-war extension of dysentery. The dysenteric bacilli tended to attack children, but apparently were not so prone to spread to adults. Amœbic dysentery was rare in children, being confined almost exclusively to adults (returned soldiers). Dr. Tebbutt had stated that no survey had been carried out in Australia. The Australian Hookworm Campaign had examined tens of thousands of stools and, although amœbæ were not looked for, it was very rare for the eggs or cysts of *Entamoeba* to be present. Moreover, he wished to point out that the examination of stools did not necessarily give a reliable negative result by which dysentery could be recognized. He referred to a patient, a soldier, who had been under treatment in Cairo for an attack of malaria. This man had a septic fever. The fact that he had had dysentery three years before had attracted attention. There had been no abnormal constituents of the stool, no bacilli and no amœbæ. The symptoms had not suggested a dysenteric affection. The patient had died and at the autopsy it had been found that there was an abscess of the liver extending into the lung and a rotten colon of the amœbic type.

DR. R. POWER referred to another curious case which had occurred in Malta. The patient had been admitted with a diagnosis of a probable perforation of a duodenal ulcer. The man had been in apparently good health and there was no history of an intestinal illness. He had been a *post mortem* attendant and, although he had frequently handled bodies of persons dead of dysentery, he had never worn gloves. An amœbic abscess of the liver had been found.

DR. MARJORY LITTLE, in reply to Dr. Sutton, stated that in their observations infection with Shiga's bacillus had been traced in one instance to the father, who was a returned soldier. The mother and two children had become infected. On the other hand, this mode of infection was by no means universal. True dysentery in children had undoubtedly occurred before the war. In endeavouring to isolate pathogenic organisms they did not inoculate plates directly from stools, but preferred the shreds of mucus contained in the result of a "saline bowel wash-out" for cultivation purposes. This method had yielded a larger percentage of results than any other.

#### Cranial War Injuries.

DR. B. T. EDYE read a paper on head injuries (see page 5).

DR. H. S. STACY congratulated Dr. Edye on his interesting remarks. He pointed out that the British Army owed a great deal to Harvey Cushing and to Crile in connexion with cranial war injuries.

DR. H. R. G. POATE, after complimenting Dr. Edye, said that he had been attached to a "head centre" at the time when Harvey Cushing had come over to France. It had been noted that patients after head injury travelled very badly indeed. They had endeavoured to minimize the ill-effects of transport by the provision of a special ambulance service and the wounded men had been taken as early as possible. In this way it had been possible to convey the man in easy stages to the casualty clearing station within the space of two hours. Early operation was essential and had therefore been carried out immediately the men were admitted. In the next place they had discovered that these patients did not tolerate long operations. By practice and by paying attention to the time factor they had been able to complete the operation within thirty minutes. When Harvey Cushing had arrived, he had been astounded to witness this rapid operating.

He, the great master of cerebral surgery, had operated on one patient and had taken over two hours. This patient had died. Cushing had asked them what was the secret of their success. They had obtained immediate recovery in 60%. Dr. Poate thought that it spoke volumes in favour of Cushing that he should have watched them operate, asked them how they obtained their good results, then criticized them and taught them many things of the utmost value. In discussing the question of the mortality rate of these cranial operations, he referred to Jefferson's statistics, which gave the mortality at 37%. In the early stages all these injuries had been fatal. Later two out of every three patients had died and still later two out of every three had recovered. Success depended not only on early operation and rapid work, but also on completeness. It was essential that all the bony fragments should be removed and the brain tissue damaged beyond repair should also be removed. The brain resisted infection to an extraordinary degree and it had often been a great surprise to them to witness the complete healing and ultimate recovery that had followed some very extensive damage. The patient had been kept during the first forty-eight hours under the influence of morphine or of "Omno-pom." As a rule it had been possible to evacuate the men from the casualty clearing station in from ten to fourteen days. Dr. Poate also referred to the difficulty experienced at times in removing a piece of shell that had been buried deeply in the skull. He cited an instance in which the first attempt had been futile, while at the second operation the foreign body had been removed. This patient had ultimately recovered.

DR. R. O. DOUGLAS understood Dr. Edye to have said that the treatment of head wounds comprised excision of the damaged portion of the scalp, bone and meninges. He ventured to suggest that this was not correct in so far as the ragged edges of the meninges were concerned. He thought it very unwise to take the risk of again opening up the sub-arachnoid space for the sake of removing a very small amount of tissue and of providing a path of entry for the organisms in the infected wound.

DR. GEORGE BELL asked Dr. Edye to inform them of the method employed of removing damaged brain. Harvey Cushing, he understood, used a catheter and a small suction syringe, while Willems had told him that he used a small curette gently.

In his reply, DR. EDEYE called Dr. Douglas's attention to the fact that the treatment he (Dr. Edye) had described, had been carried out in the very early stages, before infection could have been firmly established in the wounds. The excision of the ragged and infected edges of the *dura mater* was considered a very important aid in the eradication of sepsis. The treatment at the later stage, when meningeal adhesions had formed, was a very different question. Gordon Holmes and Percy Sargent, in the first stages of the war, when opportunities for the early treatment of head injuries were few, had emphasized the danger of disturbing these adhesions. In regard to the methods of removing damaged brain, he stated that no special procedure had been adopted. Gentle manipulation was used for the removal of foreign bodies and these manipulations usually sufficed for the removal of much of the semi-fluid brain substance. They certainly had not used curettes to remove damaged brain tissue. The defect in the skull was always covered by adjacent scalp, which was raised in the form of a flap or otherwise, according to the requirements of the case.

#### Gas Gangrene.

DR. W. KEITH INGLIS read a paper on gas gangrene and illustrated his remarks by projection pictures and by specimens from the museum (see page 7).

Dr. Inglis stated that as this was the first occasion on which the War Pathological Specimens had been exhibited in public, at all events in Sydney, it was fitting that they should place on record their gratitude to those medical officers who, in spite of great difficulties, had been sufficiently enthusiastic to collect the material from which the specimens had been prepared; to the Royal College of Surgeons of England and particularly to Sir Arthur Keith

for the facilities so willingly placed at their disposal for storage and cataloguing; to Professor C. J. Martin and others like him, to whom many of them owed so much, and, finally, to the authorities of the Sydney University for providing them with the wherewithal to mount and house the specimens in a manner worthy of the institution.

DR. H. S. STACY spoke in appreciative terms of Dr. Inglis's paper and of the contributions by Dr. Little and Dr. Edye. In France they had noticed again and again the restriction of gas gangrene to one group of muscles. It had been recognized that the pathology of gas gangrene was of the utmost importance in the treatment of this condition. They had endeavoured to obtain pathological specimens for the purpose of study, but had experienced great difficulty in persuading anyone to prepare the material. Those who had tried it, had been overcome by the odour and other objectionable characters of the work. Eventually a man who in civil life had followed the calling of butcher, had volunteered for this work and had carried it out admirably. After the condition had been thoroughly studied, they had found in theory that the excision of a group of muscles involved should have sufficed, but the surgeons had not always had sufficient confidence in the pathological findings to follow them; they had amputated limbs occasionally when mere excision of the affected muscles would have been the better course. Direct infection was relatively common. Several of the patients had died from gas infection in retro-peritoneal hæmorrhage following wounds of the bowels.

DR. H. R. G. POATE agreed that the morbid anatomists had taught the surgeons the lesson of gas gangrene. In the early stages of the war immediate amputation had been carried out. This treatment was too radical. It was always possible, even in the early stages, to recognize the peculiar condition of gas gangrene affecting muscles. If the muscle or muscle groups involved were dissected out, recovery usually followed. Very dramatic results had been obtained from the excision of a large portion of the *vastus internus* and *vastus externus* muscles.

In conclusion, Dr. Poate called attention to the fact that Dr. Inglis, in enumerating the people and institutions to whom they owed a debt of gratitude for the magnificent War Pathological Collection, had omitted to mention one of the most important. They all knew what an immense amount of energy, skill and enthusiasm Dr. Inglis had expended on this work. He hoped that his name would not be omitted in any public recognition.

DR. A. H. TEBBUTT, D.S.O., stated that gas gangrene was relatively uncommon in Sydney. The disease was readily recognized at autopsy and it was therefore unlikely that it had been overlooked in the past. At the Royal Prince Alfred Hospital he could remember more than two or three cases during seven years. One of the specimens was being shown that evening. He referred to an interesting autopsy on the body of a well-developed young man with a malignant retro-peritoneal tumour and numerous metastases in the lungs and liver. Professor Welsh had suggested that the neoplasm might be a chorio-epithelioma. Intense *post mortem* lividity of the head and neck had been found; the veins had stood out prominently and had been associated with bubbles of gas in the chest wall, mediastinum and liver. Gram-positive bacilli had been found in the veins. A portion of the transverse colon had been gangrenous, apparently as the result of a laparotomy. Looking back it seemed to him that this was an auto-genous colonic infection, corresponding with Dr. Inglis's uterine cases.

He wished to associate himself with Dr. Poate in recognizing the valuable work done by Dr. Inglis in connexion with the war specimens.

DR. R. O. DOUGLAS endorsed the opinion that excision of a muscle group was in many cases a limb- and life-saving procedure. Towards the end of the war, however, surgeons had tended to carry the principle too far. Muscles or even large muscle groups were cut out because there was a little crepitus about the wound, the result of air entering at the same time as the whirling missile. Even in true gas gangrene there were grades of severity. Sometimes nothing was of any avail. At other times the body tried to limit the spread of the inflammatory reaction, which

often defeated its own ends. In a tightly enclosed fascial compartment oedema, spreading ahead of the infection, obstructed the blood supply to the muscles. This lowered the vitality and facilitated further penetration of the organism. Dr. Douglas held that it was not necessary in every case to excise the whole of the infected muscle. The fascial compartment should be split both proximally and distally throughout its entire length, so as to relieve tension. Terra-cotta coloured, non-bleeding, lifeless muscle should always be excised, especially if crepitant. Healthy red muscle, bleeding easily and twitching sharply when pinched, could often be saved, so that some function of the muscle remained. The difficulties in the way of complete excision of muscles like the *adductor magnus* or the *tibialis posterior* were great, but relief of tension by splitting the fascial sheaths was easier.

DR. T. W. LIPSCOMB thanked all three readers of papers for their valuable and interesting discourses. He referred particularly to the enthusiasm displayed by Dr. Inglis in the preparation of the war specimens. The possession of this material and the result of the study of it was already beginning to bear fruit in the application of the lessons of the war to the conditions of civil life.

DR. INGLIS replied very briefly.

## Public Health.

### CONTROL OF INFECTIVE DISEASE IN NEW SOUTH WALES.

THE following regulations under the *Public Health (Amendment) Act, 1921*, of New South Wales have been published in the *New South Wales Government Gazette*, No. 171, of December 15, 1922.

The diseases referred to in Schedules "L" and "M" are diphtheria and membranous croup, scarlet fever, epidemic cerebro-spinal fever, bubonic plague, polio-myelitis, variola and enteric fever.

#### Regulations.

##### Definitions.

#### 1. For the purpose of these Regulations—

**Contact.**—A "contact" shall be deemed to include every person who has been exposed to infection from any of the infectious diseases mentioned in Schedule "M." He shall continue to be a contact until the completion of the corresponding prescribed period of incubation for that disease.

**Carrier.**—A "carrier" shall be any person having in his nose or throat, or in his excretions or discharges, germs of any infectious disease, although presenting no signs or symptoms of the disease. Proof of the presence of such germs of disease to be established by bacteriological examination performed in a laboratory controlled by an officer of the Department of Public Health or approved by the Director-General of Public Health.

2. Every "contact" or "carrier" shall submit to medical examination at such time and place as a medical officer of health or a medical practitioner authorized in that behalf by the Director-General of Public Health directs.

3. Every "contact" or "carrier" shall carry out such instructions as a medical officer of health or a medical practitioner authorized in that behalf by the Director-General of Public Health specifies and for such period as he directs.

4. Any "contact" or "carrier" may be placed under medical surveillance or may be isolated and detained in isolation in his own home or in any other place if, in the opinion of a medical officer of health or of a medical practitioner authorized in that behalf by the Director-General of Public Health, such action is deemed necessary to prevent the spread of infection.

5. Any person who has been informed in writing by a medical officer of health or a medical practitioner authorized in that behalf by the Director-General of Public Health that he is a "carrier" shall not take part in or be employed in any business connected with the manufacture, preparation, storage, handling or delivery of food or drugs for human consumption or handle any vessel, receptacle,

package, utensil, instrument or thing used in the manufacture, preparation, packing, storage, carriage or serving of any food or drug for human consumption.

6. On receipt of a notification of a case of infectious disease within its district, the local authority shall forthwith cause to be carried out an inspection of the premises concerned, inquiries made and such particulars obtained as will enable it to take the necessary steps for preventing the spread of infection or for the removal of any conditions likely to favour infection: Provided that such inspection shall not apply to a public hospital or Government institution.

7. Every person shall truly answer all relevant questions put to him by an officer for the purpose of tracing the source or preventing the spread of any infectious disease and to that end shall give all relevant information and produce all documentary or other evidence which may be required of him by such officer.

8. The local authority for any district included in the Metropolitan Combined District or the Hunter River Combined District or the Municipality of Broken Hill, shall forthwith on request furnish to the medical officer of health for such district, on the form prescribed, the results of the investigation into any case or cases or suspected cases of infectious disease. The local authority for any district in New South Wales shall forthwith on request furnish to the Secretary to the Board of Health the results of such investigations on the form prescribed.

9. After the recovery or removal to hospital or death of any person suffering from an infectious disease on any premises, the local authority shall cause the premises and also the bedding, clothing or other articles which may have been exposed to infection, to be disinfected to the satisfaction of an officer, but such disinfection shall not apply to any public hospital or Government institution.

#### Disposal and Burial of Corpses Dead of Infectious Diseases.

10. The body of every person who has died of an infectious disease, shall be wrapped as soon as may be after death in a wrapper so as to envelop it completely, which wrapper shall be wet with a solution made by mixing five parts of carbolic acid with ninety-five parts of water or other approved disinfection.

11. Every such body shall be coffined and the lid of the coffin shall be permanently fastened down within twenty-four hours after death.

12. The joints of the lower part of every coffin used to contain the body of a person who has died of an infectious disease shall be watertight.

13. No person shall hire or use a public conveyance other than a hearse for conveying the body of a person who has died from any infectious disease, without previously notifying the owner or driver of the conveyance that such person has died from infectious disease and the owner or driver of any such public conveyance used for this purpose shall immediately after such use cause such conveyance to be disinfected to the satisfaction of any officer of the Board of Health or the local authority.

14. The body of a person who has died from any infectious disease, shall not be retained unburied elsewhere than in a mortuary approved by the Board of Health for a longer period than thirty-six hours if within a municipal district or for longer than forty-eight hours if within any other district. It shall be the duty of the occupier of the building or place where the body is and if there be no occupier it shall be the duty of the owner to carry out the provisions of this Regulation and on failure to do so such occupier or owner shall be liable to a penalty not exceeding £10.

15. The body of a person who has died from any infectious disease, shall not be removed from the premises on which the death has occurred, except to a mortuary approved by the Board of Health or for conveyance direct to a cemetery or crematorium for the purpose of being forthwith buried or cremated.

#### Exclusion from School of Patients and Contacts.

16. "School" shall be taken to include kindergarten, primary or secondary school, technical school, private school or Sunday school.

(a) When the case of infectious disease notified occurs in a person of any age in a house in which any pupil of



school age is resident, the local authority shall forthwith notify the parent or other person in charge of such pupil or pupils of his duty not to permit them to return to school until the prescribed period of exclusion has been completed and the local authority shall on the prescribed form forthwith notify the head teacher or head teachers of the school or schools usually attended by such pupil or pupils of the occurrence of the case.

(b) Every pupil who has been certified to be suffering from any infectious disease (specified in Schedule "L") or who is a contact, shall be excluded from school for the period set out in that Schedule with respect to that disease and it shall be the duty of the parents or guardians of pupils who are suffering or have suffered from any infectious disease or who are contacts, and of the head teacher or other person in charge of any school attended by such pupils to take all reasonable steps to secure compliance with the requirements of this clause.

(c) The parent or other person in charge of a patient who has been prevented from attending school under these regulations, and the parent or other person in charge of any child of or under school age who is a contact, or such patient, shall not during the period of exclusion from school suffer or permit any such patient or contact to attend any cinematograph hall or other place of amusement, church or public gatherings, whether admission is gained thereto by payment or otherwise.

## Correspondence.

### CHRONIC SUPPURATIVE OTITIS.

SIR: In your issue of December 16, 1922, Dr. H. M. Jay, in his quotation from a paper by Dr. R. Graham Brown, published in THE MEDICAL JOURNAL OF AUSTRALIA, May 28, 1921, brings again to my mind the astonishment created by the statistics presented by Dr. Brown of the prevalence of adenoid and tonsil disease in Queensland when I read his paper. In this he says: "When I first went on the honorary staff of the Hospital for Sick Children I was doing as many as two hundred adenoidectomies and tonsillectomies a month." This means, by a simple calculation, that two thousand four hundred major operations—for such the double operation is admitted to be—were being performed annually in one institution by one surgeon for one class of disease.

Dr. Brown could not have come to deal with an accumulation of neglected cases. He was by no means a pioneer in Brisbane; there were skilled specialists long before his time who would not neglect to treat this class of disease and the general practitioner there, as elsewhere, had recognized its importance and operated frequently. We are reminded of Gilbert's "Iolanthe" and say, paraphrasing the famous man: "Every little boy or little girl that's born alive in Queensland must be either a little adenecto or a little tonsillectomital."

I may claim to be a pioneer in public hospital service in diseases of the ear, nose and throat in Australia, having been appointed to establish such a clinic at the Sydney Hospital in 1886. I afterwards had the cooperation of such worthy colleagues as Camac Wilkinson, T. S. Kirkland, T. Dixon and P. Kenna. We did not take our responsibility lightly. We spent from four and a half to five hours in our out-patient department twice a week, treating cases and selecting cases for operation as in-patients. We were not likely to overlook cases requiring operation, but we never "struck it rich" in the Brisbane sense—two hundred cases a month!

Cases of untreated chronic middle ear suppuration afforded to the pioneer a rich field of usefulness. A middle ear suppuration of ten years' duration healed in less than that number of weeks was a result frequently obtained by treatment purely local applied to the ear. Dr. Jay's advice is excellent—early treatment of acute cases will result in healing in the great majority of cases and chronic cases requiring radical operations on the mastoid will be much less common.

The efficient removal of diseased tonsils and nasopharyngeal adenoid growths, as advocated by Dr. Jay and Dr. Brown, is a necessary and important part of the treatment.

The incidence of chronic middle ear suppuration depends largely on the treatment of acute cases, which, when efficient, may prevent it, but the number of cases requiring operation for diseased tonsils and adenoids of the nasopharynx is proportional to the birth rate. So far as young subjects are concerned, therefore, it would be advisable for specialists looking for a new field to wait till they hear further before making "a rush" to this reported "strike of very rich stuff."

Yours, etc.,

ANDREW J. BRADY.

175, Macquarie Street, Sydney,  
December 18, 1922.

### SPIRITUAL HEALING.

SIR: My attention has been called to an article under the above heading which appeared in your issue of December 2, 1922. May I crave the indulgence of a few lines to comment on just three points raised in the article?

You adopt without further inquiry the finding of a sub-committee appointed thirteen years ago to investigate the subject of spiritual healing to the effect "that the essential factor in the cures that had been wrought (by this method) was suggestion." I deprecate this facile identification of spiritual healing with suggestion and should press for a drawing of a clear distinction between the two. The latter, whether induced by another or self-induced, is a mental process only and consists in the introduction or evoking of a certain idea or attitude of mind which then reacts for good upon the body. It wholly ignores the religious factor, which is dominant in spiritual healing. For the latter, it is not the belief of the patient, but the Power in which he believes that is the source of the healing. Faith on the patient's part is indeed the necessary antecedent condition of healing, but it is a spiritual potency external to the patient which is thus enabled to bring into action recuperative forces otherwise left dormant. The patient's faith is the channel of healing, but Christ is the Healer. I am putting this in terms of religion and not of technical science, for it is only in religious language that spiritual healing can be defined; but the religious factor introduces an element which differentiates spiritual healing from any method in which it is ignored.

This leads me to my second point. You draw a sharp line of distinction between functional and organic disease and declare that "no instance has been recorded in which organic disease, proved by pathological examination to exist, has been cured by suggestion." Whatever be the facts with suggestion, I should be unwilling to set so rigid a limitation on the scope of spiritual healing and for the reason which I have given above, *videlicet*, that it brings into play a power of which suggestion knows nothing, and derived from a higher sphere than the latter. Moreover, is it possible in medical theory or practice to draw this rigid line of distinction between the functional and the organic or to claim that it is only in the former that certain methods can be efficacious?

And now for my last point. Whatever the claim that is made for spiritual healing, there is no thought of erecting it in competition with the doctor's skill and work. That the preparations for Mr. Hickson's visit and work in Australia are "potentially dangerous" either to patients or to the medical profession I emphatically deny. I fully and gladly recognize that medical science is the first line of defence against disease of any kind and our only desire is not to compete with and still less to supersede the physician's work, but to bring to his aid fresh resources of healing to which within the limits of his own professional skill he has no access.

Yours, etc.,

P. A. MICKLEM.

St. James's Rectory, Sydney,  
December 19, 1922.

[OUR correspondent has a right to demand of us a respect for his faith and religious beliefs, but he appears to forget that there are other religious faiths and beliefs whose protagonists do not agree with the doctrines embodied in "Christian science," "spiritual healing," "prayer

healing" and the like. The medical profession is concerned with facts, not with beliefs.

It is not clear what the Reverend Micklem means by his reference to the adoption of the findings of the sub-committee of the British Medical Association "without further inquiry." This committee investigated the cases of several patients under treatment by Mr. Hickson. This gentleman manifested a curious lack of discrimination at that time. Some of the patients were suffering from *tubercles dorsalis*, which, as our correspondent is probably aware, is a syphilitic disease. The lightning pains and visceral crises disappeared under the influence exercised, but the signs of involvement of the spinal cord, the ataxia, the Argyll-Robertson pupils and the other objective manifestations of disease increased steadily. Mr. Hickson was unable to produce more effect than the removal of subjective symptoms. The other cases investigated were partly functional and partly organic. The functional symptoms were relieved, but not so the organic signs. Our correspondent may object to the distinction between functional and organic disease, but if he wishes to engage in controversy on scientific subjects, he must admit facts. We, on the other hand, refrain from expressing opinions concerning the acceptability or otherwise of any given religious beliefs. The ancient Egyptians, Greeks and Romans claimed infallibility; to-day there is no unanimity in this respect. We claim, however, that when the microscope discloses a cancerous process, not even Mrs. Eddy's dictum that there is no such thing as organic disease, can alter the fact that the patient is suffering from malignant disease. Mr. Hickson, like every other irregular practitioner of medicine, has failed to adduce evidence that he can cure this terrible malady.

The danger of a campaign in favour of this form of suggestion, cloaked behind the garments of religious belief, lies in the inclination of many ignorant people to waste time by submitting to Mr. Hickson's treatment before a diagnosis is made. It is only too common for patients to apply for treatment of serious disease at so late a stage that nothing effective can be done for them. Human nature is ever inclined to the heterodox and the boosting of Mr. Hickson will, we fear, have the result of increasing the number of those who seek advice too late. Of the "resources of healing" to which our correspondent refers, we know nothing. When "spiritual healing" can produce a single cure of cancer, of *tubercles dorsalis* or of disseminated sclerosis, the medical profession will be willing to revise its position. At present the findings of the sub-committee appointed thirteen years ago must stand.—EDITOR.]

#### BASAL METABOLIC RATES IN GRAVES'S DISEASE.

SIR: With regard to Dr. Grant's paper in your issue of December 16, 1922, entitled "Basal Metabolic Rates in Graves's Disease," the impression is given that X-rays are of very little value in the treatment of this condition, especially as reference is made to the fact that two patients were not benefited by an unknown dosage given by an unknown technique. However, the paper is very valuable as pointing out the value of the estimation of the metabolic rate in following the progress of such cases.

Numerous observers elsewhere have recorded their observations upon this subject and testify to its value. Thus Holmes (*American Journal of Roentgenology*, December, 1921, page 730) reports upon the experiences of three hundred and sixty-nine cases of hyperthyroidism treated by X-rays at the Massachusetts General Hospital, where every case is seen by a "goitre commission" consisting of an internist, surgeon and Roentgenologist. Photographs are given of patients both before and after treatment, as well as charts recording weight, pulse and basal metabolic rates. Burrows and Morrison (*Proceedings of the Royal Medical and Chirurgical Society, Section on Electro-therapy*, July, 1920, Volume XIII., page 132) sum up for a series of one hundred consecutive cases treated with X-rays results as follows: Perfect, twenty-seven; good functional, forty-nine; improved, twenty; abandoned treatment, not improved, four. For a similar series treated with radium the figures are twenty, twenty, forty and twenty respectively.

My own experience is limited. One patient was sent to me for treatment by X-rays who had been operated upon two years ago and refused further surgical measures. She was treated on August 30 last by means of a small dose only. Since then her metabolic rate has dropped from 50% to 30% above normal, pulse from 134 to 108 and has improved in many other directions since. With larger doses further improvement should take place.

Yours, etc.,

H. FLECKER.

4, Collins Street, Melbourne,  
December 20, 1922.

#### PSYCHO-THERAPY.

SIR: In reply to Dr. Halford's letter in your issue of December 9, 1922, I do not think it would be exact to say that the whole subject of psychology depends on mental conflict. But if Dr. Halford's meaning is that conflict of one kind or another is a central feature of our lives, apart from which our mental constitution cannot be understood, then I agree with him. Certainly medical psychology turns round it.

As to the part played by self-preservation, I do not think that the phrase "instinct of self-preservation" is a happy one as applied to the complex of tendencies which make for this abstract end in the life of an individual, including as it does reaction so widely different as, for example, fear and anger.

Putting that point aside, however, Freud has repeatedly pointed out that inner mental conflicts are set up and repression occurs in the conscious or unconscious endeavour to preserve the predominance of an individual's controlling interests, that is, the predominance of those interests and corresponding satisfactions which are either recognized or felt to be the most important in his life and with which he identifies his inmost self. If we choose to describe these interests and tendencies taken together as self-preservation, there is then no dispute, I imagine, as to the importance of the part which self-preservation plays both in ordinary life and among neurotics.

The Freudian or sexual theory of the neuroses did not really fall within the limits of my paper, nor do I propose to discuss it now. But I feel that my reference to it may have been misleading by its incompleteness and I should like to take this opportunity of amplifying it sufficiently without reference to Dr. Halford's letter. The essential character of the theory is that it holds the disruptive forces which threaten the preservation of the self and so lead to the reaction which is expressed in nervous breakdown to be invariably sexual in origin. Now the case discussed in my paper is not, on the surface at least, a typical psycho-neurosis. It approaches more nearly to a true psychosis in so far as the patient tore herself away not from her own impulses, but from reality itself. She did so in the interest of sex and self-preservation at once. However, my remark holds good as to the need of powerful impulses to produce such an effect and my qualified adhesion to Freud's view holds good also.

As to possible and probable historical relations between mechanisms subserving self-preservation on the one hand and mechanisms subserving race-preservation on the other and as to the reflection of such relationships in our mental constitution and life to-day, that is a very complicated question. No doubt in the beginning hunger preceded love and love may well have differentiated out of hunger, but the recognition of this possibility does not really, I think, justify us in running them into one to-day except in so far as facts may justify us in doing so. If I wished to make a general statement I should prefer to say that the most general compulsion in mental life was not self-preservation, but the need to escape from pain and to find some kind of happiness or peace of mind. Consider, for example, the perpetual recurrence of suicide.

Yours, etc.,

J. P. LOWSON.

(Undated.)

## Medical Prizes.

### THE ALVARENGA PRIZE.

THE next award of the Alvarenga Prize of the College of Physicians of Philadelphia will be made on July 14, 1923, provided that an essay deemed by the committee to be worthy of the Prize shall have been offered. Essays may be on any subject in medicine that have not been published. They must be typewritten and if in any language other than English must be accompanied by an English translation. They must be in the hands of Dr. John H. Girvin, Secretary of the College of Physicians of Philadelphia, 19, South Twenty-Second Street, Philadelphia, Pennsylvania, United States of America, on or before May 1, 1923. Each essay must be sent without signature, but must bear a motto and be accompanied by a sealed envelope having on its outside the motto of the paper and within the name and address of the author. The value of the prize is about three hundred dollars.

### BOYLSTON MEDICAL PRIZE.

THE BOYLSTON MEDICAL PRIZE for 1922 is offered for the best dissertation on the results of original research in medicine. The writers may select the subject of their work. If special originality be displayed in the essay, the Boylston Prize Medal may be added to the money prize of three hundred dollars. Essays must be in the hands of the Secretary, Dr. Reid Hunt, Harvard Medical School, Boston, Massachusetts, United States of America, on or before February 1, 1923. No indication of the authorship of essays submitted will be permitted. The essays must bear a motto; the same motto must be placed on a sealed envelope containing within the name and address of the author. The essays must be typewritten or printed and must be presented in book form.

The Boylston Medical Prize for 1920 was awarded to Mr. Stuart Mudd, of St. Louis, for his essay entitled "Acute Inflammation of the Nose, Pharynx and Tonsils."

## Congress Notes.

### INTERNATIONAL PHYSIOLOGICAL CONGRESS.

THE ELEVENTH INTERNATIONAL PHYSIOLOGICAL CONGRESS will be held in Edinburgh from July 23 to July 27, 1923. The President of the Congress is Professor Sir Edward Sharpey Schafer, F.R.S., and the Secretaries Professor George Barger, F.R.S., and Professor Jonathan C. Meakins. Those desiring to be enrolled as members should forward their names and addresses, together with the amount of the subscription, namely, twenty-five shillings, to Miss Dorothy Charlton, Assistant Secretary, Department of Physiology, University, Edinburgh. Particulars of hotels and lodgings and other necessary information will be forwarded to those applying for membership. The expense of living in Edinburgh during the week of the Congress will be from three pounds sterling, according to the accommodation required.

### AUSTRALASIAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

THE SIXTEENTH MEETING OF THE AUSTRALASIAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE will be held at the Victoria University College, Wellington, New Zealand, from January 9 to January 15, 1923. The following medical practitioners have been chosen as delegates by various bodies in the Commonwealth: Dr. L. S. Latham, Professor J. B. Cleland, Dr. R. H. Pulleine, Dr. Harvey Sutton, Dr. E. S. Stokes, Dr. F. A. Rodway, Dr. J. H. Saunders. Information concerning membership and accommodation can be obtained by application to Mr. E. C. Andrews, B.A., the Honorary Secretary of the Australasian Association for the Advancement of Science, Royal Society House, Elizabeth Street, Sydney.

## University Intelligence.

### TESTIMONIAL TO PROFESSOR SIR HARRY ALLEN.

ON September 21, 1922, a meeting was held for the purpose of appointing a committee to act in the name of the medical profession in connexion with the proposed testimonial to Professor Sir Harry Allen. A short account of this meeting was published in THE MEDICAL JOURNAL OF AUSTRALIA of October 14, 1922, page 459. The executive committee, with Mr. F. D. Bird, C.B., as chairman, Dr. C. H. Mollison as honorary treasurer and Dr. W. G. Dismore Upjohn, O.B.E., and Dr. B. T. Zwar as honorary secretaries, has taken the matter in hand and now wishes to bring the fund to the notice of all alumni of the Medical School of the University of Melbourne. The committee anticipates that a generous response will follow an appeal that will be addressed by circular to all medical graduates of the University of Melbourne toward the end of January, 1923. Melbourne graduates are justly proud of their old school and recognize that they owe much to the eminent Professor of Pathology, whose strenuous and brilliant services have contributed largely both to the success of the school and to the individual benefit of its students. The opportunity will now be given to them to give tangible expression of their gratitude to their esteemed master and valued counsellor. Cheques should be forwarded to Dr. C. H. Mollison, 41, Spring Street, Melbourne.

## Hospitals.

### THE HOBART GENERAL HOSPITAL INQUIRY.

IN September, 1922, the Board of Management of the Hobart General Hospital, after having made some inquiry into certain charges made by the Surgeon-Superintendent against the House Surgeon and counter charges by the latter concerning the Surgeon-Superintendent, dismissed Dr. W. G. C. Clark on the ground of insubordination. On November 13, 1922, Dr. Clark brought an action against the Hospital Board of Management for wrongful dismissal. The case occupied the attention of the Supreme Court for four days and ended in a verdict for the claimant with £675 damages. The Tasmanian Government considered the position and determined not to appeal against the verdict. At the same time the Board of Management, after having heard a letter from Victor Richard Ratten in which he asked for an inquiry into his conduct in the administration of the hospital and into the scope of his consulting practice, decided to recommend the Government to institute this inquiry. The Government assented to this course. Some time elapsed before any steps were taken. Last month a commission of inquiry was appointed, consisting of Mr. E. W. Turner, a police magistrate, Dr. E. S. Morris, the Chief Health Officer, and Mr. E. H. Kennedy. The commission opened the inquiry on December 22, 1922. Its reference is to inquire into the administration, management and conduct of the Hobart General Hospital, into the existing agreement of the medical staff with the Board of Management of the hospital and into any matters appertaining to or connected with the function of the hospital as an institution established for the public welfare. After some preliminary matters had been discussed, the commission adjourned until January 17, 1923.

## Naval and Military.

### APPOINTMENT.

THE following notice appeared in the Commonwealth of Australia Gazette, No. 109, of December 21, 1922:

#### Australian Military Forces.

AUSTRALIAN ARMY MEDICAL CORPS (CITIZEN FORCES). THE GOVERNOR-GENERAL IN COUNCIL has approved of MAJOR-GENERAL SIR N. R. HOWSE, V.C., K.C.B., K.C.M.G., being transferred from the Unattached List and appointed Director-General of Medical Services, Army Head-Quarters (services not wholly employed), with pay at the rate of £750 per annum, inclusive of all allowances except travelling allowance, 18th December, 1922.



## NEW YEAR HONOURS.

BRIGADIER-GENERAL GEORGE CUSCADEN, formerly Director-General of Medical Services, has received the honour of knighthood. The congratulations of the medical profession have been hearty and wide-spread.

## Proceedings of the Australian Medical Boards.

## VICTORIA.

THE undermentioned have been registered under the provisions of the *Medical Act, 1915*, as legally qualified medical practitioners:

JACKSON, HERBERT VIVIAN, M.R.C.S., Eng., L.R.C.P., Lond., 1920, Bairnsdale.

RUNDLE, REEVE PALMERSTON, M.B., B.S., 1917 (Univ. Melbourne), c.o. Dr. M. L. Coutts, 10, Commercial Road, Prahran.

Names of practitioners removed from the Register under Section 9 of the *Medical Act* for failure to notify change of address:

ALLAN, LESLIE STUART.  
ALLESTER, EDWIN MARSTON.  
AMBROSE, ETHEL MARY MURRAY.  
ARMSTRONG, GEORGE.  
BARR, VALENTINE HERBERT.  
BOYD, PERCIVAL CRAWFORD.  
BROOKE, BARON.  
BROWN, EDGAR JABEZ.  
BRUEHL, SIEGWART.  
BUCHANAN, DONALD.  
BUZZARD, GERTRUDE CLEMES.  
CASSEL, CHARLES WILLIAM LUDWIG.  
CHARLTON, ALFRED.  
COWAN, ANDREW HUNTER.

Additional diplomas registered:

WHITAKER, JOHN GRIEVE, M.D., 1919, M.S., 1920 (Univ. Melbourne).

Name of deceased practitioner removed from the Register:

SEELEY, ADOLPHE FREDERICK.

## Books Received.

PRACTICAL CHEMICAL PHYSIOLOGY, by W. W. Taylor, M.A., D.Sc.; 1922. London: Edward Arnold & Company; Crown 8vo., pp. 71. Price: 4s. 6d. net.

## Medical Appointments.

DR. W. W. TELFORD (B.M.A.) has been appointed a District Health Officer, "Class A," Professional Division, Victoria.

THE undermentioned appointments have been made to the Honorary Medical Staff of the Royal Alexandra Hospital for Children, Camperdown, New South Wales: DR. E. H. M. STEPHEN (B.M.A.) as Honorary Physician, DR. WILFRED EVANS, M.C. (B.M.A.), as Honorary Assistant Physician and DR. R. M. L. GREEN as Honorary Relieving Assistant Physician.

## Medical Appointments Vacant, etc.

FOR announcements of medical appointments vacant, assistants, *locum tenentes* sought, etc., see "Advertiser," page xviii.

SYDNEY HOSPITAL: Clinical Assistant to the Ear, Nose and Throat Department.

## Medical Appointments: Important Notice.

MEDICAL practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, 429, Strand, London, W.C.

BRANCH.	APPOINTMENTS.
NEW SOUTH WALES: Honorary Secretary, 30 - 34, Elizabeth Street, Sydney	Australian Natives' Association Ashfield and District Friendly Societies' Dispensary Balmalm United Friendly Societies' Dispensary Friendly Society Lodges at Casino Leichhardt and Petersham Dispensary Manchester Unity Oddfellows' Medical Institute, Elizabeth Street, Sydney Marrickville United Friendly Societies' Dispensary North Sydney United Friendly Societies People's Prudential Benefit Society Phoenix Mutual Provident Society
VICTORIA: Honorary Secretary, Medical Society Hall, East Melbourne	All Institutes or Medical Dispensaries Australian Prudential Association Proprietary, Limited Manchester Unity Independent Order of Oddfellows Mutual National Provident Club National Provident Association
QUEENSLAND: Honorary Secretary, B.M.A. Building, Adelaide Street, Brisbane	Brisbane United Friendly Society Institute Stannary Hills Hospital
SOUTH AUSTRALIA: Honorary Secretary, 12, North Terrace, Adelaide	Contract Practice Appointments at Renmark Contract Practice Appointments in South Australia
WESTERN AUSTRALIA: Honorary Secretary, Saint George's Terrace, Perth	All Contract Practice Appointments in Western Australia
NEW ZEALAND (WELLINGTON DIVISION): Honorary Secretary, Wellington	Friendly Society Lodges, Wellington, New Zealand

## Diary for the Month.

- JAN. 9.—New South Wales Branch, B.M.A.: Council (Quarterly).  
JAN. 11.—Victorian Branch, B.M.A.: Council.  
JAN. 12.—Queensland Branch, B.M.A.: Council.  
JAN. 16.—New South Wales Branch, B.M.A.: Ethics Committee; Executive and Finance Committee.  
JAN. 24.—New South Wales Branch, B.M.A.: Medical Politics Committee; Organization and Science Committee.  
JAN. 26.—Queensland Branch, B.M.A.: Council.  
JAN. 27.—Northern District Medical Association, New South Wales: Glen Innes.  
JAN. 31.—Victorian Branch, B.M.A.: Council.  
JAN. 31.—Western Medical Association, New South Wales: Orange.  
FEB. 2.—Queensland Branch, B.M.A.: Branch.  
FEB. 7.—Federal Committee of the British Medical Association in Australia.  
FEB. 8.—Federal Committee of the British Medical Association in Australia.

## Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated. All communications should be addressed to "The Editor," THE MEDICAL JOURNAL OF AUSTRALIA, B.M.A. Building, 30-34, Elizabeth Street, Sydney. (Telephone: B. 4635.)

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